January, 1955

The American School Board Journal

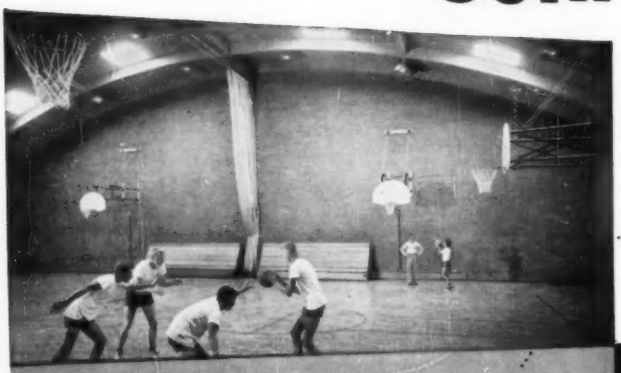
A Periodical of School Administration

Annual School Building Number

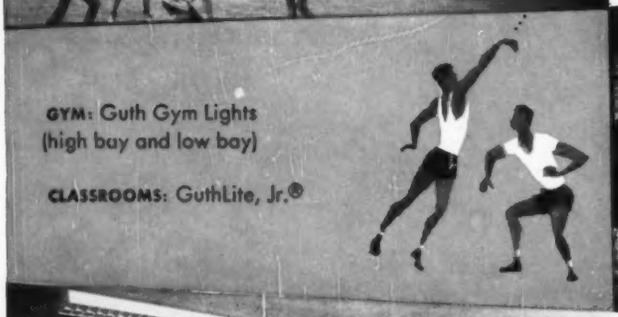
Vol. 130 No. 1

all set for high scores
in classes and sports with

Guth school lighting



Baseline Jr. High School
Boulder, Colo.



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(high bay and low bay)

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They wanted the best of everything for the students at Baseline Junior High. They chose Guth Lighting for every room from library to gym.
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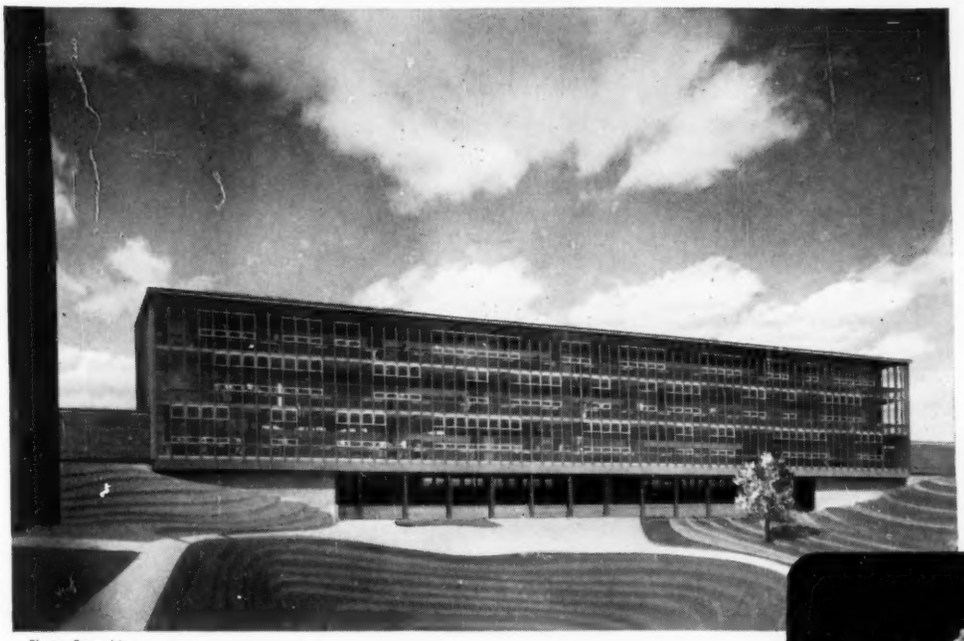

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architects, engineers

E. R. GRITSCHKE
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general contractor

SID. SMITH & CO.
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Photo: Reynolds

With additional units to come, the Keokuk, Iowa, High School and Community College is widely proclaimed "America's most modern school." Pictured left to right are: Gym-Field House, Cafeteria, Administration-Music Wing, and Academic Unit.

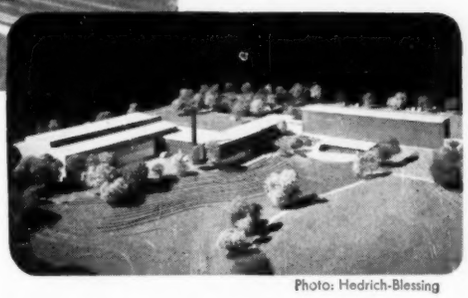

Photo: Hedrich-Blessing

CHEERS FOR "KEOKUK SENIOR HIGH!"

KEOKUK, city in Iowa, named for the Indian chief known as "he who moves alertly."— ENC. BRIT.

• The alertness of Keokuk, the city, is ably demonstrated by its remarkable new high school and community college—a highly successful million and a quarter dollar project combining determination, daring and dexterity. One of the most interesting and practical features of its main building are the three cantilevered boat-deck corridors along the entire southern front. These sun-flooded corridors have open-top partitions to north-facing classrooms which benefit from bilateral lighting and natural ventilation. Another feature is the southern façade, facing the broad campus, from which scintillating colors on the vertical fins and window frames, coupled with sunlight, shadows and sky reflections, form an inspiring and unforgettable picture. To make learning inviting, all instructional rooms are arranged, equipped and decorated in harmony with vibrant youth who add color-in-motion to the impressive scene. Throughout the buildings are service products of recognized superiority. Here, as in thousands of other fine buildings, are SLOAN *Flush* VALVES famous everywhere for efficiency, durability and economy.

more **SLOAN** *Flush* **VALVES**
are bought than all other makes combined

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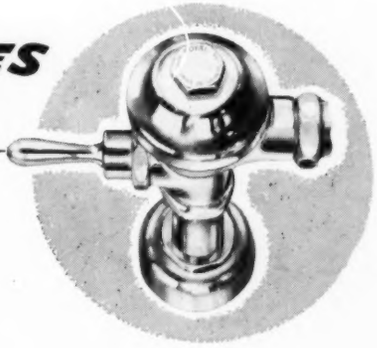

Another achievement in efficiency, endurance and economy is the SLOAN *Act-O-Matic* SHOWER HEAD, which is automatically self-cleaning each time it is used! No clogging. No dripping. Architects specify, and Wholesalers and Master Plumbers recommend the *Act-O-Matic*—the better shower head for better bathing.

Write for completely descriptive folder

here's the *solution* to "AFTER-HOURS" heating problems...

Johnson *Dual* Thermostats may be grouped by area, as shown on this typical plan. Any or all areas may be switched to low, economy "after-hours" temperatures, while only those rooms that are in use continue at normal comfort levels.

How are you handling the "after-hours" heating problem created by extra-curricular student activities and neighborhood group meetings in your school? Heating an entire building when it is only partly occupied wastes tremendous amounts of fuel *that you could just as well be saving!*

The answer is a modern *Dual* System of Johnson Automatic Temperature Control. Briefly, here's how it works:

During regular school hours, a Johnson *Dual* Thermostat in each room automatically maintains every space at the ideal comfort level. When classes are over, each group of *Dual* Thermostats in the building may be reset, from a central control panel, to operate at *reduced, non-occupancy temperatures.*

In those rooms which continue in use, merely pressing the button on the *Dual* Thermostat restores them to normal occupancy temperatures, *without changing the economy settings of the other thermostats.* Think of the fuel savings!

Johnson *Dual* Control offers the finest in modern room-by-room temperature regulation—and at the lowest possible operating cost. Heating only the occupied rooms quickly saves enough fuel dollars to pay for the cost of the entire system!

But that's only part of the story. Whether you are planning a new school or modernizing an existing one, have an engineer from a nearby Johnson branch explain, without obligation, how these and other money-saving advantages of *Dual* Control can be applied to your problems.

JOHNSON CONTROL
TEMPERATURE AIR CONDITIONING

PLANNING • MANUFACTURING • INSTALLING • SINCE 1885

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I'd like more facts. Please send me your new folder, "How Johnson Dual Control Solves the After-Hours Heating Problem in Schools."

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THE AMERICAN
School Board Journal
A Periodical of School Administration

VOL. 130 NO. 1

January 1955

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Youngsters get Sound Treatment ...for better learning

Slow students are not always themselves at fault. In case after case throughout America's schools, the "sluggish learner" is a victim of noise: the din of routine school activity. Classrooms and corridors catch and magnify the scuffing of feet, shrilling voices. Improper acoustics in auditoriums, audio-visual rooms, and classrooms prevent clear hearing, and clear thinking.

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Recent Judicial Opinion XXIV —

District Borrowing Authority for School Construction

STEPHEN F. ROACH, PH.D.

Editor, *Eastern School Law Review*
Vice-Principal, J. J. Ferris High School
Jersey City, N. J.

The biggest single problem confronting the vast majority of school districts today is probably that of providing adequate facilities for the ever increasing numbers of children reaching school age.

Concerning ourselves, for the moment, only with that portion of the task relating to the financing of the necessary schoolhouse construction, it will be of interest to consider a case[1] recently decided in the Wisconsin Supreme Court.

The problem confronting the school district here was the one still common today in many states. It arises from: (*a*) a rapid increase in school enrollment; and (*b*) school district borrowing authority insufficient to provide funds for the admittedly necessary school construction.

Facts of the Case

The Joint School District No. 3 of the Village of Centuria and the Towns of St. Croix Falls, Balsam Lake, and Eureka maintained a school in Centralia, Wis., giving instruction through 12 grades.

Due to increased enrollment the district school board determined that it was necessary to provide additional school facilities at the earliest possible date. Plans and specifications for a proposed addition to the existing building were approved by the voters at a special school meeting, and a proposal to issue bonds for erecting and equipping the addition was also adopted.

The total value of the taxable property in the school district was such that the maximum allowable debt which the district could contract — pursuant to the 5 per cent debt limit provision of the Wisconsin State Constitution — was approximately $49,000. The low bid received for the proposed construction was in the amount of $127,775.

Because of this insufficiency in borrowing authority — and because no other facilities existed — the district school board, acting in conformance with existing statutes, formed the *Centuria School Building Co., Inc.* This nonprofit corporation was organized for the express purpose of "building or otherwise acquiring a suitable building for school purposes . . . and of leasing said building to the school district." The company officers were the officers of the school district.

As permitted by statute, the school board proposed to lease vacant district land to the Building Company for a term of 20 years. A contemporary re-lease of these leased premises, from the company back to the district, was also proposed.

In order to provide the funds necessary for the construction work, the company planned to sell $130,000 in First Mortgage Serial Bonds, the bonds to be secured by the company's leasehold interest in the proposed building. The re-lease agreement called for the district to pay annual rentals of $5,500 for the first year, and $9,600 for each year thereafter, during the 20-year term of the agreement. Maintenance costs, insurance, taxes, and certain other specified expenses would be paid by the district. The prospective useful life of the proposed building was more than 20 years, and there was no claim that the annual rentals would be in excess of the fair and reasonable rental value of the leased premises.

At the completion of the 20-year term of the agreement, the corporation was to convey the leased premises, including the building and its equipment, to the school district.

At a special meeting and election on May 27, 1954, the district voters approved the re-lease agreement, voted to levy an annual tax equal to the rentals, and authorized the director and the clerk of the district to execute the agreements.

The agreements were accordingly signed by the director of the district (Rogers), but because of "doubts as to powers of the district to enter into such lease and re-lease agreements," and in order that such powers might be tested in a proper legal action, Milligan (the district clerk) refused to sign. As a result, the School Building Company was unable to issue and deliver the bonds, and hence was unable to provide the necessary funds due the contractor for work in constructing the school building addition.

Rogers, as director of the joint school district, then sought a legal writ directing Milligan, as clerk, to sign the agreements. On July 28, 1954, the lower court ruled in favor of Rogers and directed Milligan to comply. This judgment was appealed.

Findings on the Issue

The basic issue here involved the question: Did the Joint School District have the power to enter into the lease and re-lease agreement described? Or to put it otherwise: Did the device resorted to by the district — viz., the lease to the School Building Company of school district lands (the lease being contingent upon the condition that the corporation would raise the money for the construction of the school building on the leased premises); and the immediate re-leasing of such lands back to the district — violate the Wisconsin State Constitution, in that the cost of the building to be so constructed exceeded the 5 per cent debt limitation imposed by the Constitution?

Early in its opinion the court noted that as a "condition" of the lease of the school lands to the Building Company, the latter was "obligated to construct the new school building and finance the cost of the same by a mortgage of its leasehold interest."

The opinion then commented that the lease to the corporation, the re-lease back to the district, and the mortgaging of its leasehold interest by the corporation "must be viewed as one transaction, and not as three isolated occurrences." In any event, the net result of the transaction was that, because of the mortgage, "there is a possibility of the district being deprived of the use of its land during the remaining term of the lease" if it defaulted in the payment of the rental charges.

"From the standpoint of legal principle, if the mortgage of a leasehold interest in land and a building creates a debt" — as was held by the Wisconsin Supreme Court in an opinion handed down on July 28, 1954 (the very day the trial court rendered its judgment in favor of Rogers) — "then the mortgage of a leasehold of land alone does also, where [as here] the land is already owned by the governmental unit involved at the time the leasing agreement is entered into, and the governmental unit requires the use of such land for governmental purposes."

After noting that the people, if they so desired, could alter the constitutional provision regarding the controlling debt limitation "through the deliberate and thoughtful processes of constitutional amendment," the court said: "It follows that the provisions of [the existing] statutes, under which the school district is acting . . . [authorize] the district to become indebted in a manner contrary to the constitutional inhibition."

Concluding, therefore, that the plan proposed by the district would create: (1) a lien on its property; and (2) an indebtedness in

(Concluded on page 108)

[1] *State ex rel. Rogers* v. *Milligan;* cited as 66 N.W.2d 326 in the National Reporter System.

Eliminate muggy classrooms that mean muddled learning!

New Honeywell System makes temperatures and ventilation control a "productive" item

Student reactions vary widely—depending on the time of day, the type of class, and the method of instruction. Naturally, *alert* students absorb more *"take-home learning."*

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And that's why the Honeywell Schoolmaster System is such a highly productive unit in modern schools today!

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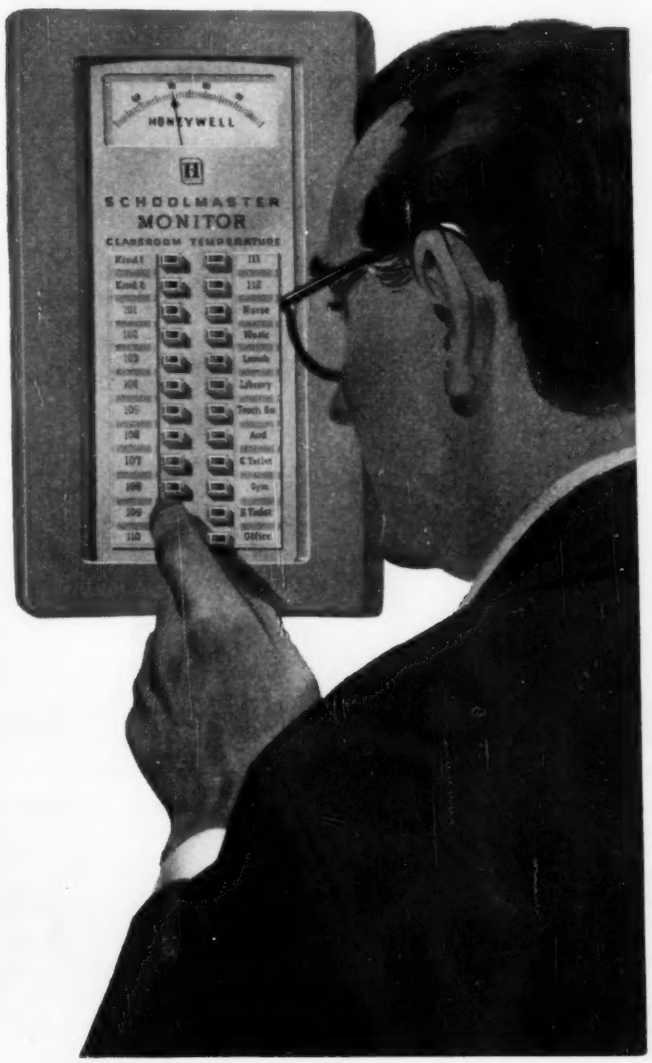
A thermostat in each room makes temperatures and ventilation control a part of teaching. The Honeywell individual classroom thermostat is *custom designed* for the instructor so that room temperatures and ventilation can be matched to class activities.

An indicator panel gives the principal a finger tip report. The panel shown here is for the principal's office and is wired to a special sensing element in the thermostat for each room. The principal can have a push-button temperature reading *for any room in the school.*



Special sensing elements provide added fire safety. You have a constant fire sentry in the Honeywell Schoolmaster System, in addition to your regular fire protection system. You have fire sensing elements in each room, and in closets and store rooms, if you wish. These elements are wired to the principal's panel to help detect fires.

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more flexible design for new or remodeled classrooms ...more usable floors and walls!

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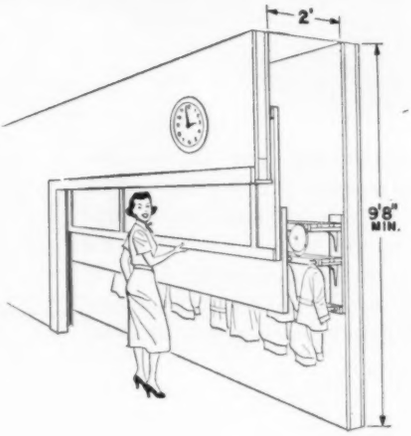
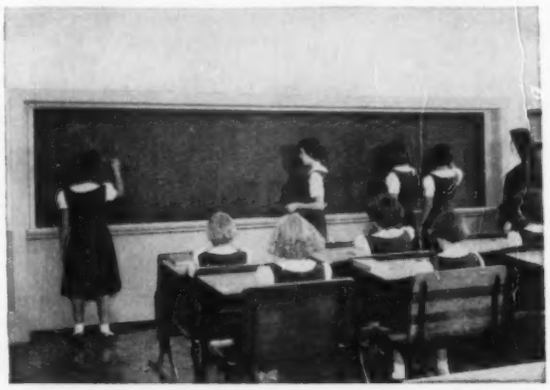


ROLLS EASILY up or down



ST. AUGUSTINE SCHOOL, Rochester, N. Y. finds large extra blackboard a valuable feature of WARDROBEdoor. Architect: Frank Quinlan.

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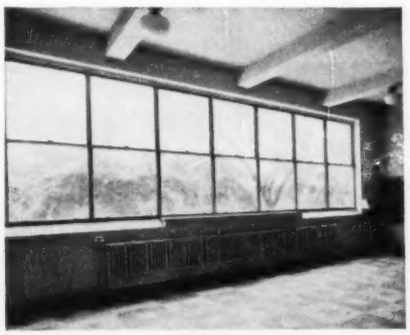
The Willard School, Highland Park, Michigan, is typical of many school buildings faced with worn-out window sash. Continual, expensive maintenance of the old sash did not provide proper protection from wintry blasts.

Willard School, Highland Park, Michigan
Architect: Louis G. Redstone; Contractor: William Bortilotti

Sash replacement began in 1951 with Owens-Illinois light-directing glass block. Now maintenance costs are practically eliminated. Glass block won't rust, rot or corrode . . . are hard to break.



OLD

windows needed constant, expensive maintenance . . . did not provide healthful daylighting throughout classrooms.

NEW

panels of glass block insulate so efficiently and daylight so effectively, heating and lighting costs are cut.

IF YOU ARE in the process of remodeling old structures, or building new ones, don't overlook the positive advantages—maintenance economies; better seeing conditions—that panels of glass block bring. For complete information write Kimble Glass Company, subsidiary of Owens-Illinois, Dept. AS-1, Toledo 1, Ohio.

**Formerly known as INSULUX*

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The Line alive for '55

Nesbitt Syncretizer

The unit ventilator that set a new standard of classroom comfort. *Publication 100*

Four models, 750 to 1560 cfm; two heights, 32" and 28"

This is a great year to be alive! Indeed, considering the ongoing rate of technical progress, A. D. 1955 has little reward for the *static* man or product. Life is *dynamic*. Ever since Nesbitt began "pionairing" in the field of schoolroom thermal comfort in 1912, Nesbitt heating and ventilating equipment has been noted for inventiveness. Some Nesbitt ideas, disparaged at first by others, have later been adopted by them—usually by the time Nesbitt had made further advances! The Nesbitt Line for '55 is *alive* and *moving*—for where progress is, there is Nesbitt. Look to Nesbitt for *all* your thermal comfort equipment.

Nesbitt

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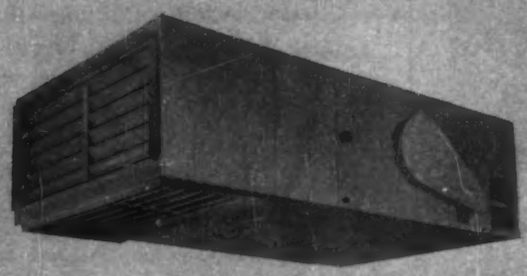
Sold also by American Blower Corporation

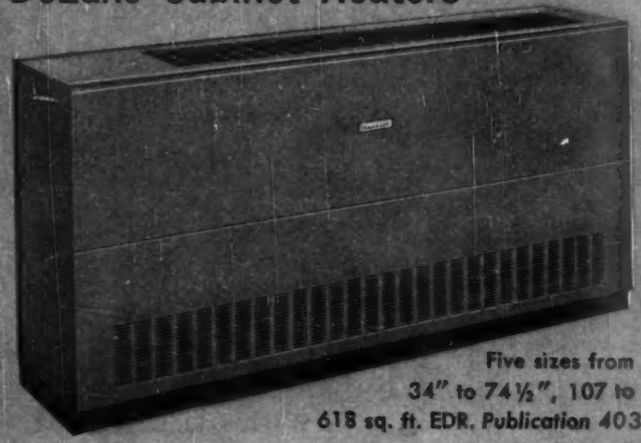
HEATING AND VENTILATING EQUIPMENT FOR SCHOOLROOMS

Nesbitt Thermovents



For heating and ventilating large interiors. Quiet operating, choice of mounting. 1250 to 15,000 cfm. *Publication 270*

DeLuxe Cabinet Heaters



Five sizes from 34" to 74½", 107 to 618 sq. ft. EDR. *Publication 403*

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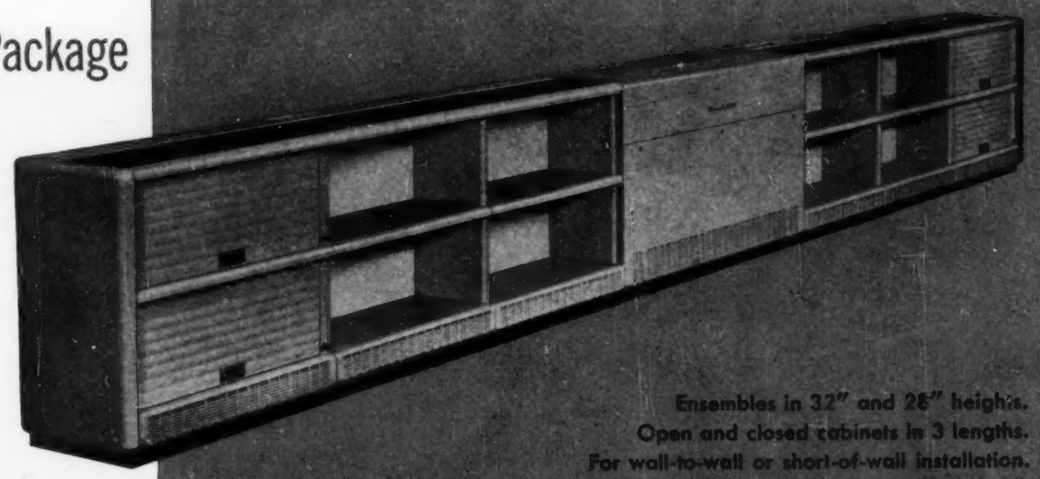
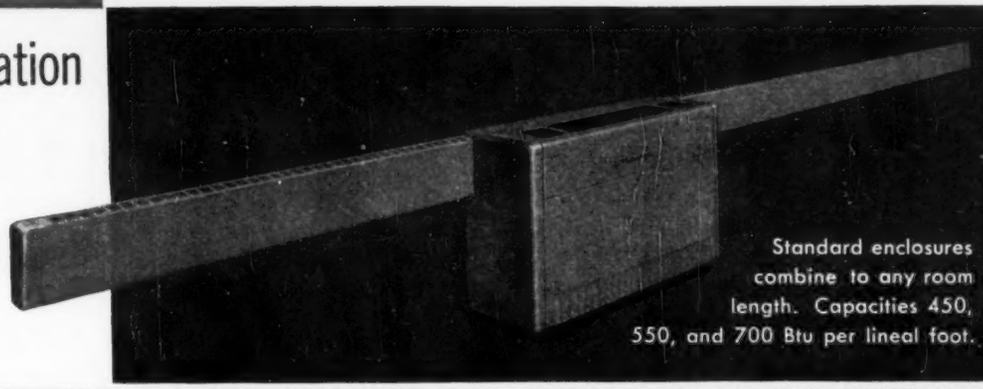
Publication 101



Ensembles in 32" and 28" heights.
Open and closed cabinets in 3 lengths.
For wall-to-wall or short-of-wall installation.

Wind-o-line Radiation

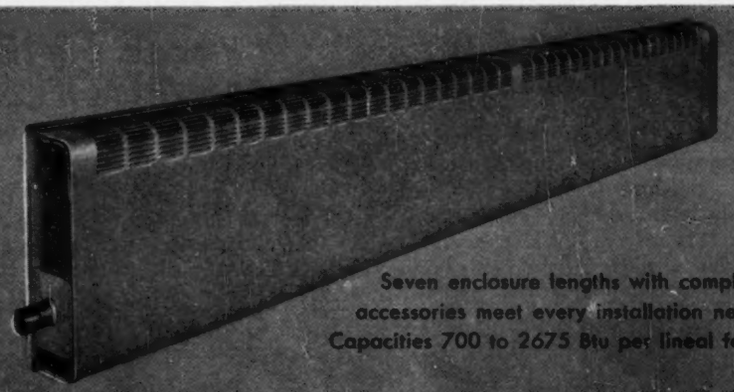
Positive protection against cold surfaces; integrated with the Nesbitt Syncretizer; in wall-hung casings, or in storage units.
Publication 101



Standard enclosures combine to any room length. Capacities 450, 550, and 700 Btu per lineal foot.

Sill-line Radiation

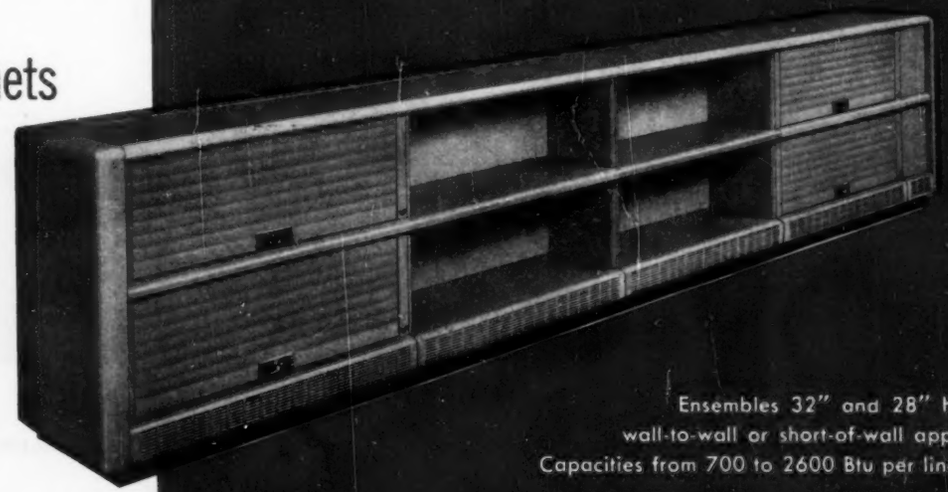
Modern high capacity finned radiation for use along windows and other perimeters, in casings styled for today's interiors. Rigid, long-life construction; draft-free comfort; low installation cost.
Publication 102



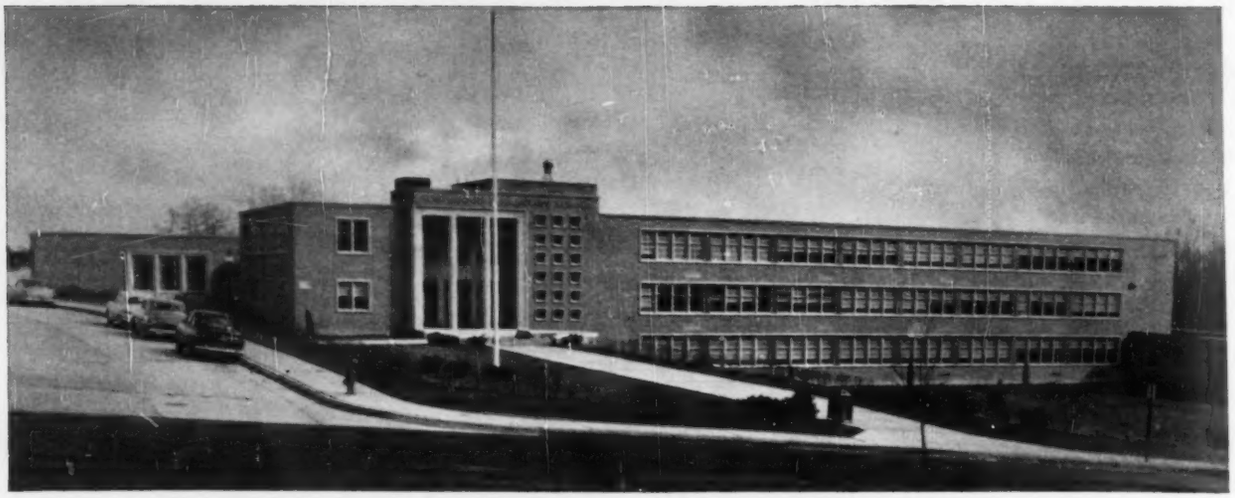
Seven enclosure lengths with complete accessories meet every installation need.
Capacities 700 to 2675 Btu per lineal foot.

Sill-line with Storage Cabinets

Combining the advantages of perimeter heating with attractive storage units at moderate cost.
Pub. 261, Section S



Ensembles 32" and 28" high, for wall-to-wall or short-of-wall application.
Capacities from 700 to 2600 Btu per lineal foot.



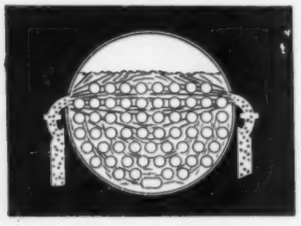
Modern Northwood Elementary School has 25 classrooms, an auditorium, gymnasium, cafeteria and 12 miscellaneous rooms. Architects, Jamison & Marcks; Mechanical Engineers, George & Hartman; Builder, Leimbach Construction Corp.; Mechanical Contractor, H. E. Cook Co., Inc.—all are of Baltimore, Md.

Another modern school gets modern boilers — Pacific Boilers with Jet-action Circulation!

With its practical contemporary design, Northwood Elementary School, Baltimore, Md., provides a wonderful setting for learning. No less wonderful are the modern boilers that keep its 1,500 students comfortable—Pacific Boilers with Jet-action Circulation.

Advantages of Jet-action Circulation

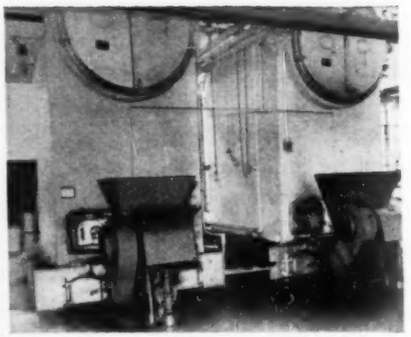
Pacific's exclusive jet connections project hot water and steam across the heating tubes at high velocity. This high turbulence sweeps away—and keeps away—heat-insulating bubbles that cling to the tubes.



Tubes absorb heat faster; fuel consumption is lowered. And when temperature changes are desired, response is practically immediate!

These benefits of Pacific Boilers are important to you . . . to your customers as purchasers. For only Jet-action Circulation provides such fast-acting, economical operation.

Pacific Boilers come in all sizes, using all fuels, for all types of buildings. For catalogs and more data on how Pacific Boilers can help improve your installations, call your local Pacific representative today!



Northwood's two Pacific Boilers with Jet-action Circulation provide dependable, economical heat. Because shell can be separated from firebox, installation of these boilers is quick and easy.

Designed Constructed and Stamped in Accordance with ASME Code

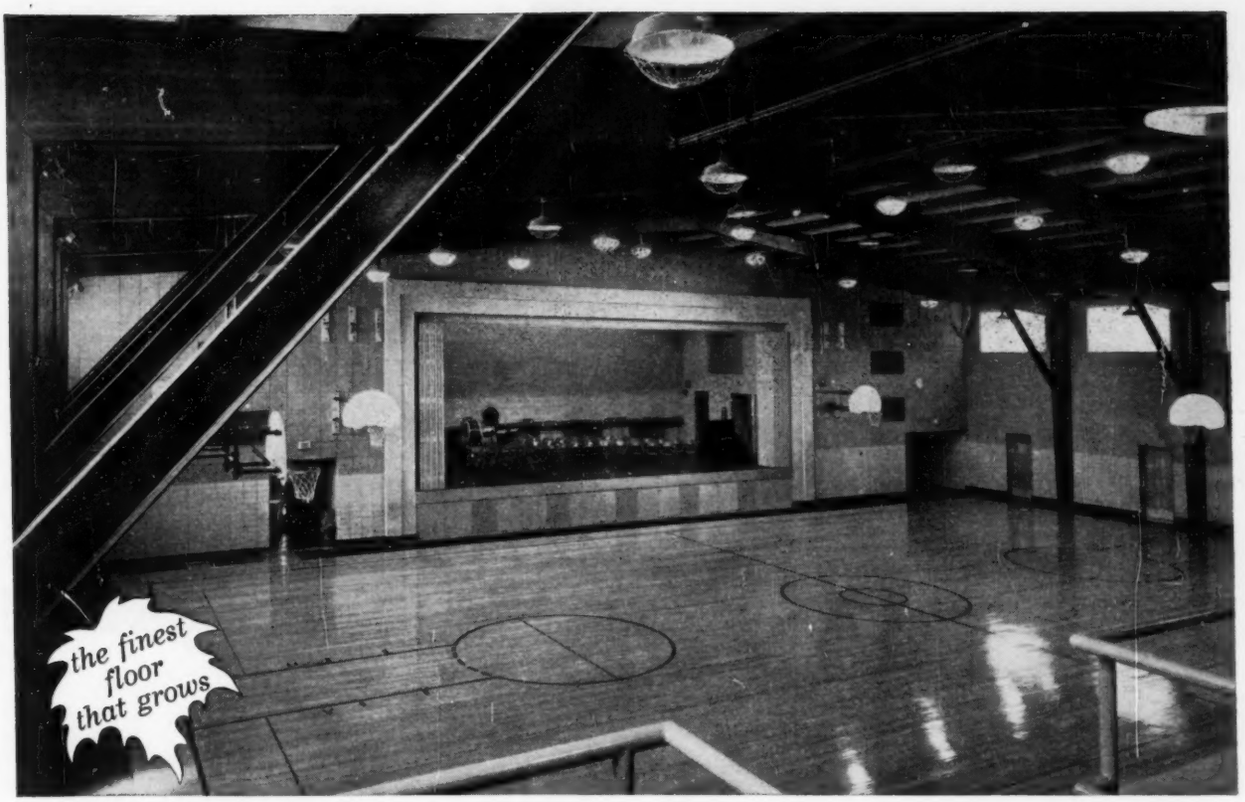
SBI

PACIFIC

Pacific Steel Boiler

DIVISION • UNITED STATES RADIATOR CORPORATION

GENERAL OFFICES: DETROIT 31, MICHIGAN



modern gymnasium-auditoriums deserve "the finest floor that grows"

"foot-friendly"

NORTHERN HARD MAPLE

The multi-purpose room, so characteristic of the modern school building, ought always to be floored with Northern Hard Maple. And for reasons that aren't mere whims or opinions.

As a gym floor, no other wood and no mere floor *covering* serves so well, so long, with such universal satisfaction on the part of players, coaches and trainers. Northern Hard Maple is highly *resilient*—resists dents and mars. Court-lines stand out sharply on its bright surface. It's smooth, tight, enduring. It's "foot-friendly"—has a "live" instead of a "dead" feel. Routine maintenance is easy, re-surfacing quick and simple.

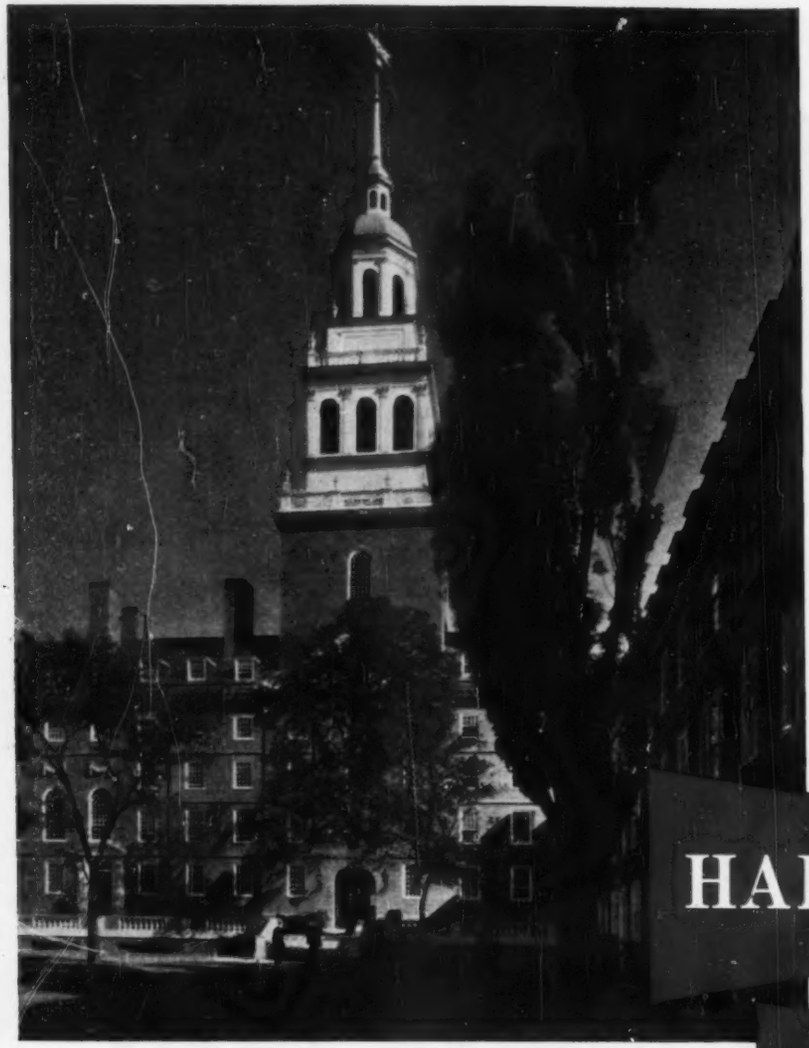
And for other purposes, your Maple floor is, invariably, either better or equally acceptable. Cost of MFMA-certified Maple, especially in the handsome, thoroughly sound Second-and-Better grade (popularly known as "the gymnasium grade") is no more than most substitutes—often less. Maintenance is cheaper, service life *much* longer, satisfaction *much* greater. This, gentlemen, is a fair and true statement of the case. We believe you'll agree it points to Maple emphatically as the prudent choice.

ABOVE—Oak Lawn Community High School, Oak Lawn, Ill. Madden & Connor, Architects, Harvey, Ill. Flooring, Northern Hard Maple.

See Sweet's
(Arch. 12k-MA) or write for AIA data file folder and latest listing of MFMA-approved floor finishes and methods.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
Suite 588, Pure Oil Building, 35 East Wacker Drive, Chicago 1, Illinois

FLOOR WITH *NORTHERN* HARD MAPLE
BEECH AND BIRCH



Above: LOWELL HOUSE

Architects: for Lowell House, Dunster House, McKinlock Hall, Vanderbilt Hall, Littauer Building, Gordon McKay Laboratory–SHEPLEY, BULFINCH, RICHARDSON & ABBOTT • for Aldrich Hall–PERRY, SHAW, HEPBURN, KEHOE & DEAN and McKIM, MEAD & WHITE, Associate Architects.

Mechanical Engineers: for Lowell House, McKinlock Hall, Vanderbilt Hall–FRENCH & HUBBARD • for Dunster House, Littauer Building–RICHARDSON & GAY • for Aldrich Hall–HAYDEN, HARDING & BUCHANAN • for Gordon McKay Laboratory–R. G. VANDERWEIL.

Heating Contractors: for Lowell House, McKinlock Hall–CLEGHORN CO. • for Dunster House–T. J. MURPHY & CO. • for Vanderbilt Hall–JAS. S. CASSEDY, INC. • for Littauer Building–V. J. KENNEALLY CO. • for Aldrich Hall–THE MERRILL CO., INC. • for Gordon McKay Laboratory–McLEAN-COUSENS & BARTON, INC.

Oldest university in the U.S.A.

HARVARD

...another distinguished user of

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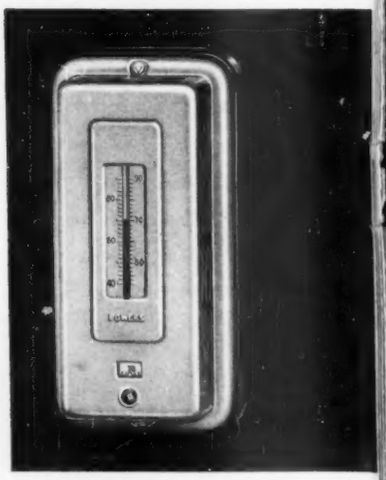
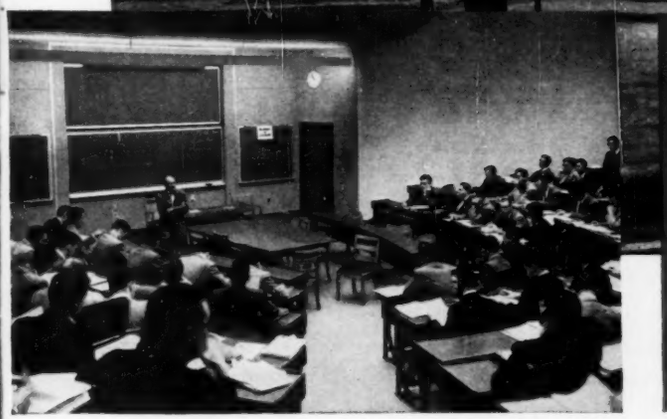


1 DUNSTER HOUSE, on the Charles River
2 MCKINLOCK HALL
3 VANDERBILT HALL
4 LITTAUER BUILDING



ALDRICH HALL Harvard Graduate School of Business Administration

One of the 17 unique classrooms shown at left seats 158 students; three others seat 80; and 13 accommodate 102 each. The rooms have been arranged to provide an intimate relationship between instructor and student in the give-and-take discussions by the case method generally used throughout the Harvard School of Business Administration.

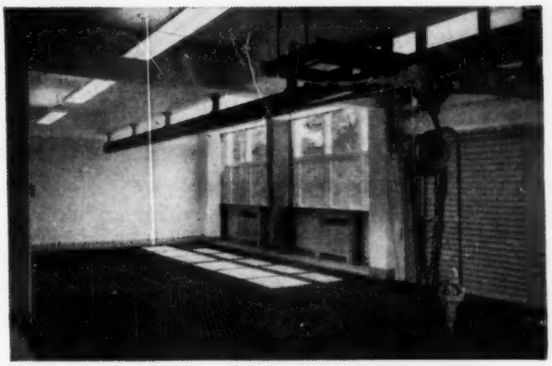
Below: GORDON McKAY LABORATORY

Interior photo shows two-story room with important features, a high door and removable intermediate floor to permit varying uses. Research in this laboratory is conducted in mechanical engineering, electronics, electrical engineering and the properties of matter.

POWERS

AUTOMATIC SYSTEMS OF

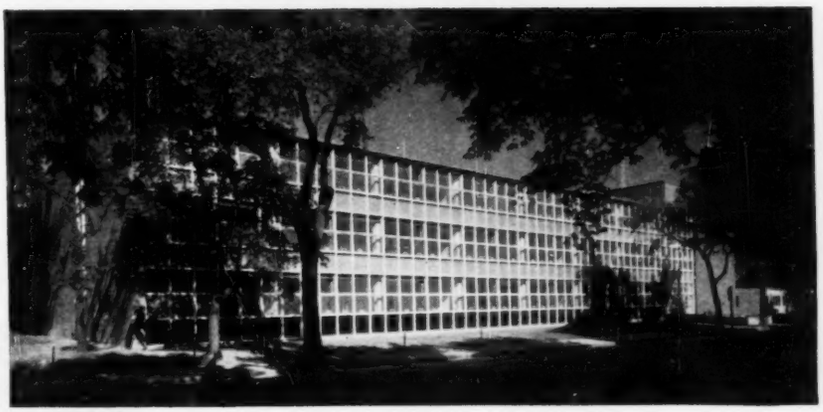
Temperature Control



On the Harvard campus are to be found some of America's most beautiful buildings. A few of them which benefit from the maximum thermal comfort and fuel savings assured by POWERS control are illustrated here.

For more than half a century POWERS control has been renowned for its matchless ability to give many years of efficient economical service. Users often report 25 to 50 years of reliable control with a minimum of repairs.

Experience gained here and in thousands of other famous buildings qualifies POWERS to help you select the most economical and efficient temperature control for your buildings. When problems of temperature control arise, call our nearest office or write us direct.



THE POWERS REGULATOR COMPANY

SKOKIE, ILLINOIS | *Offices in 60 cities in U. S. A., Canada and Mexico*

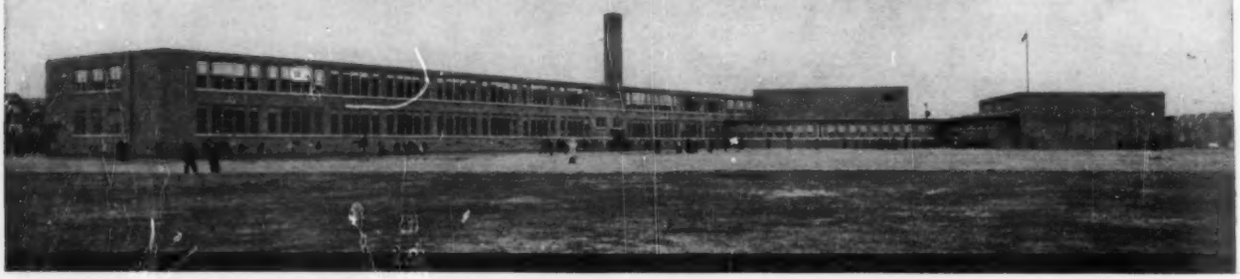
POWERS CONTROL

Over 60 years of Automatic

Temperature and Humidity Control

(b85)

Even 100-mile-an-hour rain cannot penetrate this modern school's walls, coated entirely with water repellent made with *Linde* silicones.



Huge school system approves water repellents made with LINDE silicones for above-grade

"Invisible Raincoat" Protects City's Schools

In one of the nation's largest cities, the above-grade exterior brick and concrete of school buildings is being coated with water repellents made with LINDE Silicones.

More than thirty of the school system's close to 300 older buildings have already been treated. New schools are being treated as erected. To date, 500,000 sq. ft. are done.

Board of Education maintenance engineers say that rain leaks and seepage that once caused costly damage have b

Mas absorp stoppe past. A washes

Leaks were serious in this older school, so brick was repointed, then coated with silicone repellent. Result: No more problems from moisture.

Why y

Above-g silicones reduced

More repellen all these

• **Clear** Cause no shine.

• **One C** For comp

• **Penetr** Reach co mum effe

• **No Seepage**
Even rain driven 100 miles an hour runs right off, yet . . .

• **Non-Sealing and Pressure Resistant**
Permits masonry to "breathe."

ice for 10 years!

• **Easy to Apply**
Either low-pressure spray or brush.

• **Can Be Painted Over**
With oil-base paints.

• **CALL OR WRITE LINDE**—for the full story on water repellents made with LINDE silicones for above-grade masonry, and a list of representative suppliers. Address Dept. C-1.

FOR SILICONES LOOK TO Linde AIR PRODUCTS COMPANY | A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

General Offices: 30 East 42nd Street, New York 17, N. Y.
IN CANADA: Dominion Oxygen Company, Division of Union Carbide Canada Limited
The term "Linde" is a registered trade-mark of Union Carbide and Carbon Corporation

modern design calls for COOLITE

ew Thomy Lafon Elementary School, New Orleans, La.; Curtis & Davis, Architects; A & O Builders, General Contractors

Absorbing, Glare Reducing Glass Brightens Classrooms Solar Heat or Eye-Fatiguing "Raw" Sunlight

The Thomy Lafon School, New Orleans, La., acknowledged to be an outstanding modern design, makes extensive use of Coolite, Heat Absorbing, Glare Reducing Glass. It's unique qualities fit the aim of the architects and engineers, Curtis & Davis, to obtain "the ultimate in scientific achievement for natural lighting . . . a truly functional architecture adapted to human values and physical needs." For Coolite floods classrooms with softened, glare-free light for easier seeing . . . absorbs up to 50% of the solar heat to help keep interiors comfortable.

Coolite removes the harmful qualities of "raw" sunlight . . . helps students see better, feel better, work better. Coolite permits use of large glass areas without undue heat . . . makes rooms appear larger, friendlier.

Consider Coolite for your classrooms when you build or remodel. Translucent glass by Mississippi for better daylight illumination is available in a wide variety of patterns and surface finishes to fit any daylighting need within any school budget.

Mississippi maintains an experimental school building on factory grounds for the study of daylighting. Take advantage of the company's wide experience. It's technicians are ready to help you with every daylighting problem.

Send today for catalog, "Better Daylighting For Schools." Write Dept. 14.

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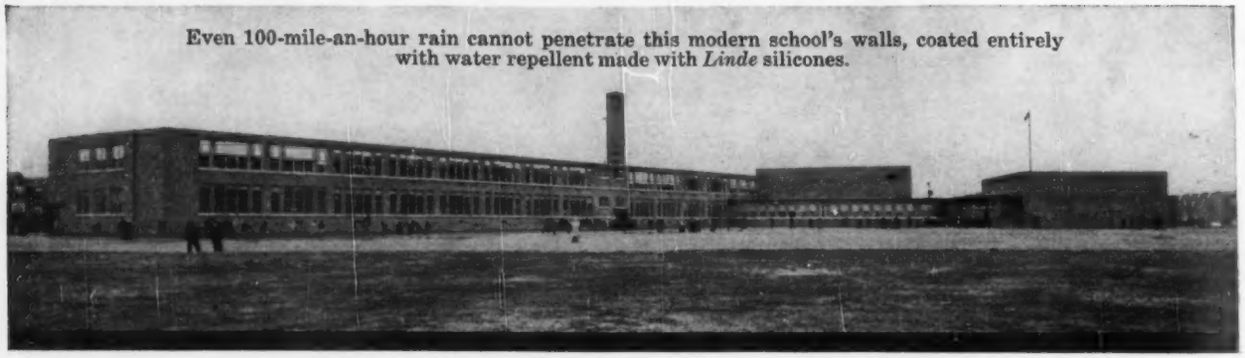

Even 100-mile-an-hour rain cannot penetrate this modern school's walls, coated entirely with water repellent made with *Linde* silicones.

Huge school system approves water repellents made with LINDE silicones for above-grade masonry

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More than thirty of the school system's close to 300 older buildings have already been treated. New schools are being treated as erected. To date, 500,000 sq. ft. are done.

Board of Education maintenance engineers say that rain leaks and seepage that once caused costly damage to interior plaster, paint, and woodwork, have been eliminated.

Masonry spalling and cracking caused by water absorption and freezing have been completely stopped. Unsightly efflorescence is a thing of the past. And buildings stay cleaner because rain simply washes dirt down the walls.

Leaks were serious in this older school, so brick was repointed, then coated with silicone repellent. Result: No more problems from moisture.

Why you, too, should specify "Linde" silicones

Above-grade masonry water repellents made with LINDE silicones mean . . . longer life for concrete and brick . . . reduced maintenance inside and out . . . better appearance.

More and more architects are specifying masonry water repellents made with LINDE silicones. They alone provide all these advantages:

- **Clear and Invisible** — Cause no change in color, no shine.
- **One Coat** — For complete water repellency.
- **Penetrating** — Reach correct depth for maximum effectiveness.
- **No Seepage** — Even rain driven 100 miles an hour runs right off, yet . . .
- **Non-Sealing and Pressure Resistant** — Permits masonry to "breathe."
- **Fast-Working** — Dry in 3 hours to complete water repellency.
- **Applicable the Year Round** — Can be applied even at 15 degrees Fahrenheit.
- **Long Lasting** — Tests indicate dependable service for 10 years!
- **Easy to Apply** — Either low-pressure spray or brush.
- **Can Be Painted Over** — With oil-base paints.

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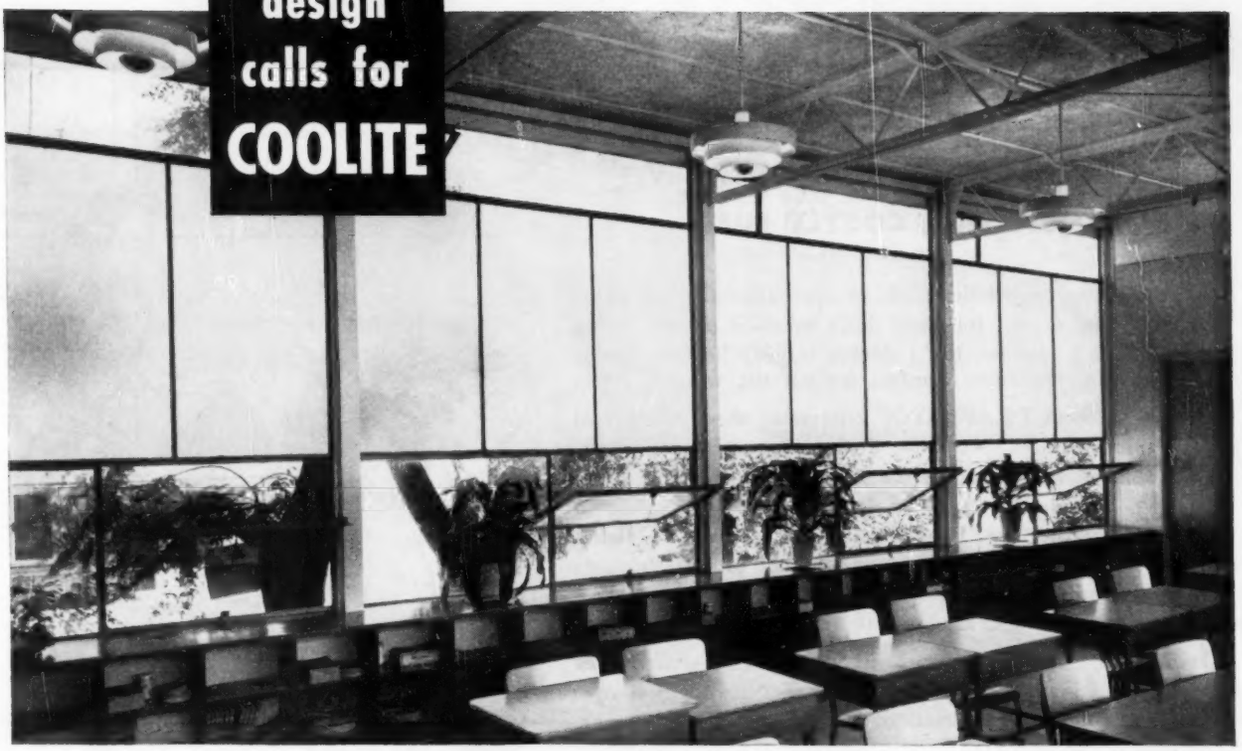

New Thomy Lafon Elementary School, New Orleans, La.; Curtis & Davis, Architects; A & O Builders, General Contractors

Mississippi Heat Absorbing, Glare Reducing Glass Brightens Classrooms Without Excessive Solar Heat or Eye-Fatiguing "Raw" Sunlight

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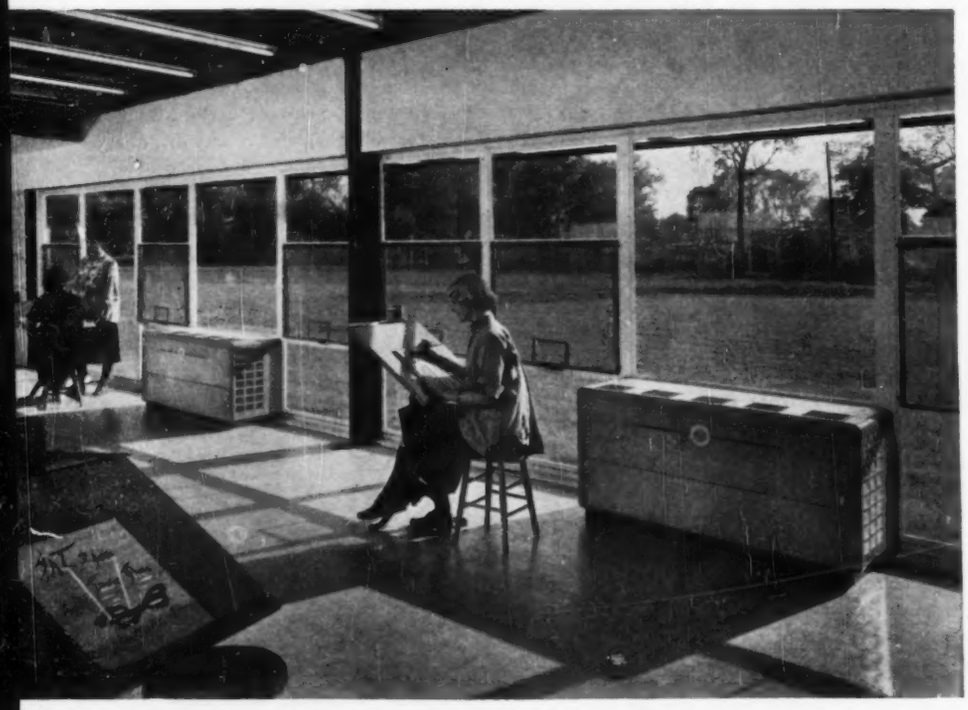
HERMAN NELSON DRAFT/STOP SYSTEM COOLS CLASSROOMS COMFORTABLY WITHOUT WASTING COSTLY FUEL.

OPEN classroom windows are an open admission of waste. Heat you've paid for—and don't need—is literally being thrown out the window. It's a double tragedy because, beside the dollar loss, classroom comfort is "out the window", too.

Herman Nelson DRAFT|STOP eliminates these costly fuel losses "automatically". Actually, during classroom occupancy, heating is a minor function of the unit. Its major responsibility is cooling—introducing outdoor air in sufficient quantities to compensate for the "free" heat contributed by students, lights and solar effect. Even Herman Nelson's method of draft elimination requires no heat which both simplifies the cooling problem and saves more fuel dollars.

Comfortable classrooms, closed windows and cash savings! No wonder budget-minded schools are Herman Nelson's best customers. For complete information, see our catalog in Sweet's Architectural File, or write Herman Nelson Unit Ventilator Products, American Air Filter Company, Inc., Louisville 8, Kentucky.



MICHIGAN. Classroom comfort in a modern setting. Herman Nelson Unit Ventilators provide ideal thermal conditions, day and night, at lowest cost for Grosse Point University School, Grosse Point, Mich. Superintendent of Schools: John Chandler, Jr.; Architect: Leinweber, Yamasaki & Hellmuth; Engineer: William Brown; Mechanical Contractor: W. J. Rewoldt Co.

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All at minimum cost

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SYSTEM OF
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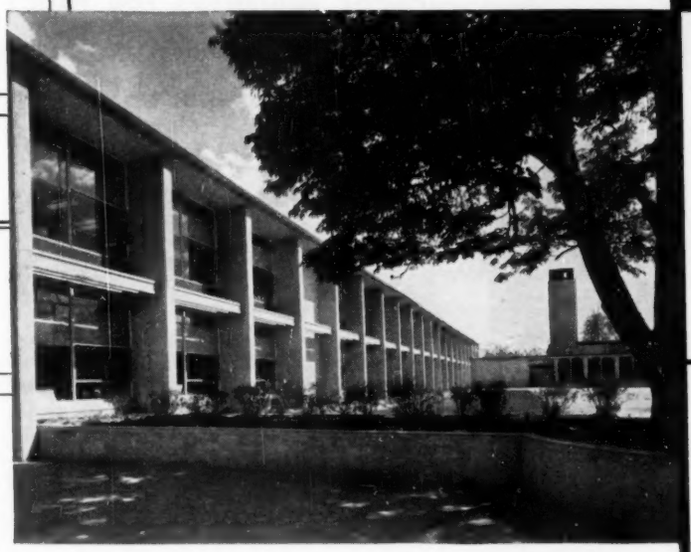
out the windows?



OHIO. Every window closed and every room comfortable! Garfield Elementary School, Columbus, Ohio, depends upon Herman Nelson DRAFTSTOP System for complete cooling, heating and ventilating. Superintendent of Schools: N. G. Fawcett; Principal: Charles P. Blackburn; Architect: Brooks & Coddington; Engineer: Ralph & Curl; Mechanical Contractor: Huffman-Wolfe Co.

NORTH CAROLINA. Quiet please! Open windows won't invite distracting noise and drafts into this library. Herman Nelson DRAFTSTOP System keeps temperature at comfort level at all times for the Alfred G. Griffin School, High Point, N. C. Superintendent of Schools: Dean B. Pruette; Architect: Voorhees & Everhart; Engineer: Watson & Hart; Mechanical Contractor: White Engineering Co.

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AAF

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Goodbye Mr. Chips! AAF Type D ROTO-CLONE designed for dust control of school woodworking shops. Unit is self-contained and requires little space. Ask for Bulletin 272-EI.

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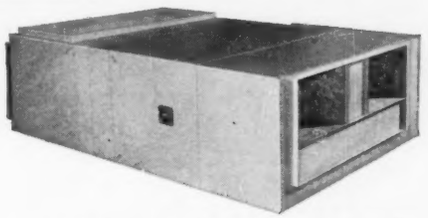
FOR AUDITORIUMS



Comfort for crowds! Herman Nelson Auditorium Unit Ventilator with the exclusive acoustical silencer is the package answer to heating, cooling and ventilating gymnasiums and auditoriums. Ask for Bulletin 650.

Hurricane Herman! Herman Nelson Propeller Fans, direct or belt drive, are designed for the efficient economical ventilation of laboratories, lavatories, kitchens and locker rooms. Ask for Bulletin 800.

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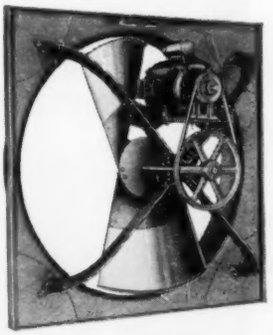

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I would appreciate receiving literature describing the following products—

- ☐ Classroom Unit Ventilators
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These are typical Mutschler installations... specified and installed by better schools throughout the nation. Mutschler equipment is especially designed for rugged use, yet is beautiful in appearance! It is built from northern maple in natural, driftwood or oven-baked enamel finishes. If your school is considering a modernization or building program, our engineers will be glad to show you how to get more for your money with Mutschler planned and equipped departments. Write for name and address of your nearest Mutschler sales office.

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DEPARTMENT 1555-I
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Illustration at top shows general view of an all-purpose homemaking department. Left above, laundry and sewing areas of án all-purpose department. At far left is living area. Below, left to right, are views of crafts department and art room.

The right windows can make a REAL DIFFERENCE . . .

Ask the teacher!

The teacher sees the effect of good daylighting and good ventilation in a lot of ways. In a classroom filled with fresh air and daylight, her students are more alive and alert—more receptive to learning. There's none of that "closed-in" feeling. And needless to say, the teacher herself feels "more like teaching" in such a room. Fenestra* windows give you *more* daylight per opening because of their slender, but strong steel members.

There are practical, as well as psychological, advantages to the right windows. The teacher can operate the vents in Fenestra Intermediate Projected Steel Windows easily. Tilt-in vents protect her students from drafts, and like tilt-out vents, admit fresh air even on rainy days. And sill vents keep even the most rambunctious of small fry from tumbling out the windows.

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For complete information on these beautifully designed steel windows, call your Fenestra representative. He's listed in the yellow pages of your phone book. Ask for our authoritative booklet, called *Better Classroom Daylighting.* Or write Detroit Steel Products Company, Dept. AS-1, 2256 East Grand Boulevard, Detroit 11, Michigan. *®

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Architectural, Residential and Industrial Windows • Metal Building Panels
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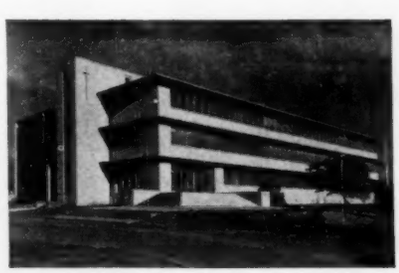
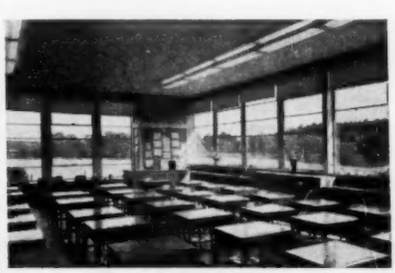
MISSOURI. Fenestra Steel Windows in Willard Elementary School, Willard, Mo. *Architect:* I. Dale Allmon, Springfield, Mo. *Contractor:* DeWitt Construction Co., Springfield, Missouri.



TEXAS. Fenestra Steel Windows in the Science Hall at St. Mary's University, San Antonio, Texas. *Architect:* Julian & White, San Antonio. *Contractor:* Lynn & Morsey, San Antonio, Texas.



MASSACHUSETTS. Fenestra Steel Windows in the Elementary School at Kingston, Mass. *Architect:* Bogner & Richmond, Cambridge, Mass. *Contractor:* Blake Construction Co., Milton, Mass.

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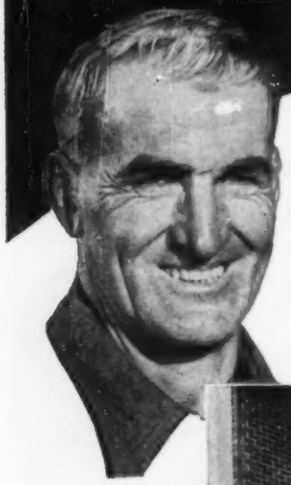

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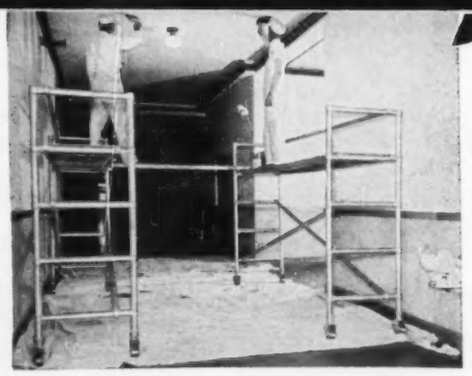

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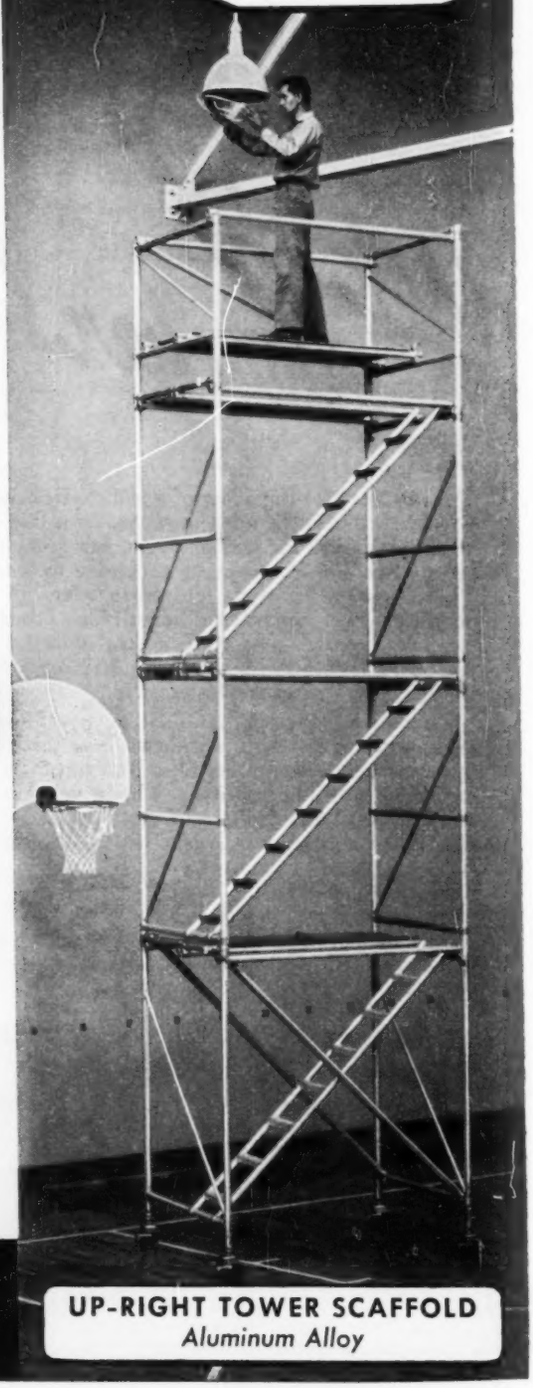

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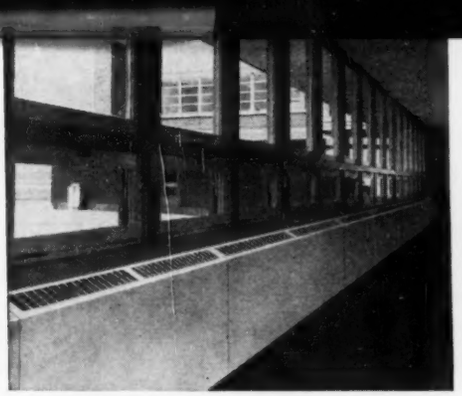
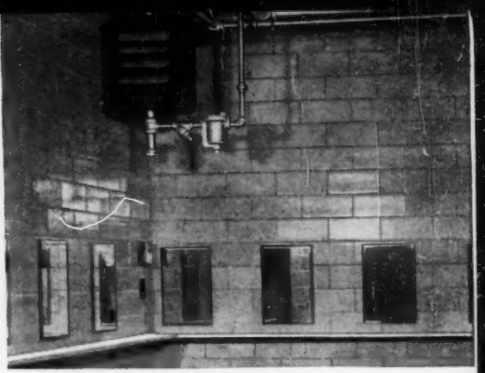


In hallways TRANE Wall Line Convectors bring draft-free heating to long wall and window runs, blend with beauty of modern buildings.

In gymnasiums TRANE Projection Heaters, tucked away high above occupied zones, force heat trapped by ceiling down to floor level.



In restrooms TRANE Model H Heaters put heat where you want it. Exclusive Diffusers let you control spread.

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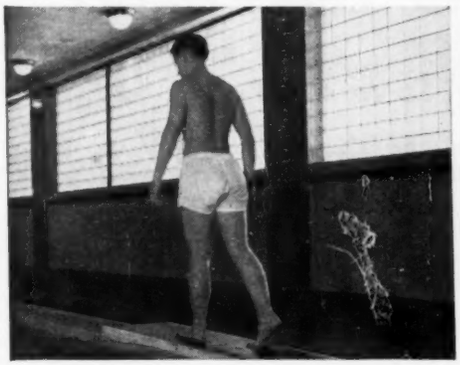
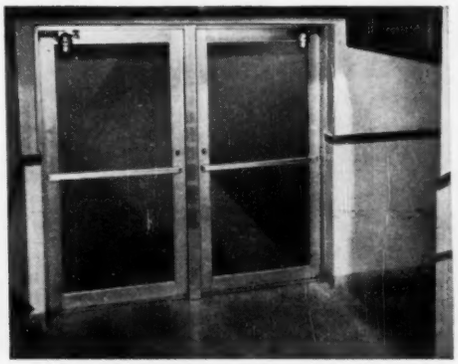
In auditoriums TRANE Volume Ventilators blend outdoor air with room air, warm and distribute it overhead.



In swimming pools TRANE Wall-Fin surrounds occupied area with warmth, prevents drafts. (TRANE Torridors add tempered ventilation.)



In entryways TRANE Force-Flo Heaters greet youngsters with warm welcome . . . blanket doors with heat to block cold air, stop drafts.

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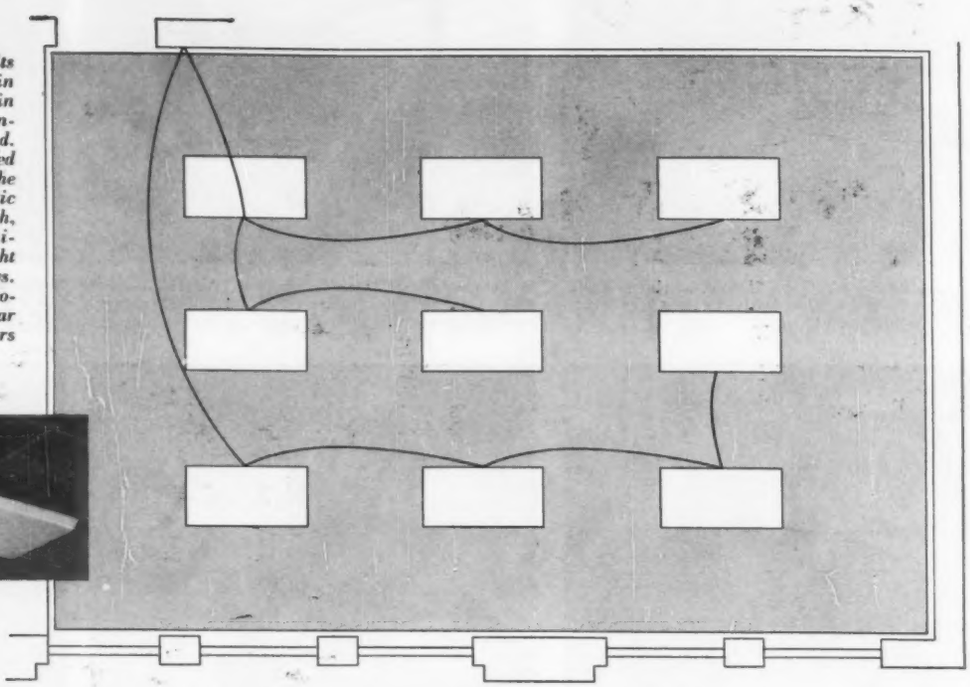
Nine Wakefield 2'x4' Beta units provide evenly diffused light in this reconverted classroom, in which eight different environmental elements are coordinated. Beta is a completely contained unit which is recessed into the ceiling. Its Rigid-Arch plastic diffuser has a matte finish which, when the units are unlit, minimize any mirroring of bright light coming from the windows. There is a new illustrated brochure on the Beta, of particular interest to school administrators and architects.



Can a 26-year old classroom be converted into a coordinated classroom?

YES, and at a relatively low cost

A group of imaginative men decided it *was* possible to make a silk purse out of a sow's ear. They demonstrated the truth of their theory by transforming, at a relatively low cost, a 26-year old room in Grant Community High School, Ingleside, Illinois, into a modern, functional, completely coordinated classroom. The men: Carl Boester, Lafayette, Indiana, Nairne W. Fisher, Fisher-White Associates, Chicago, Illinois, Dr. Darell Boyd Harmon, Austin, Texas.

THE ENVIRONMENTAL ELEMENTS COORDINATED:

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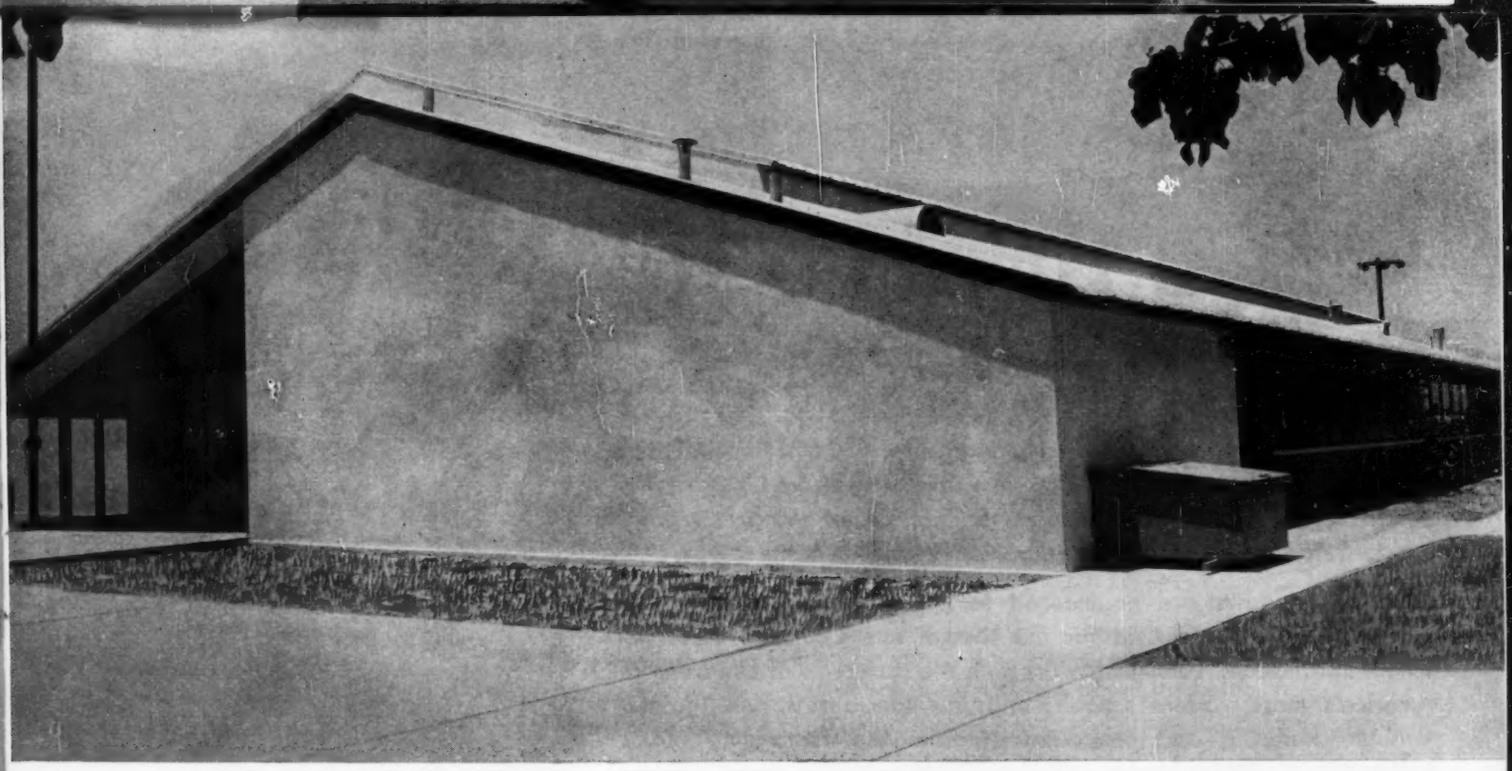
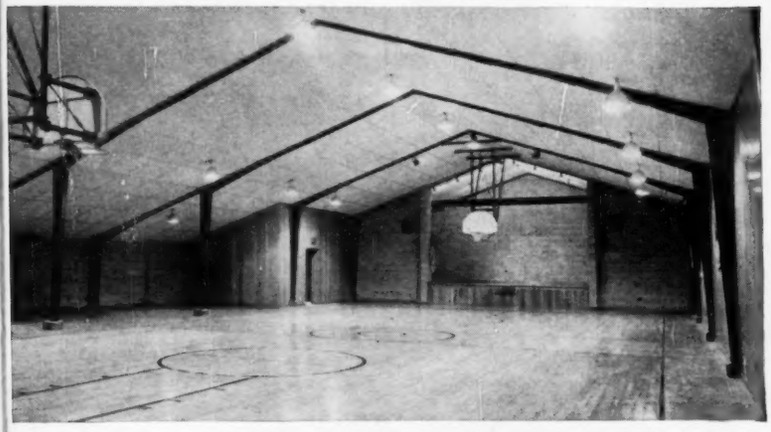
- √ Posture seating consonant with eye health

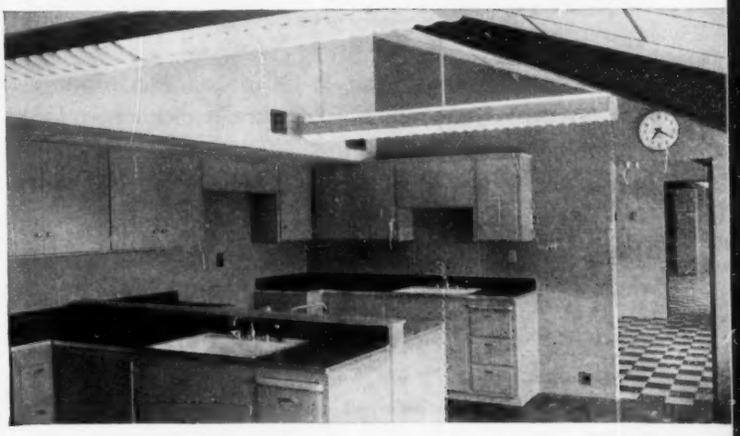
Participating in the adventure were 17 manufacturers, including Wakefield, which has been providing engineered lighting for coordinated classrooms since the earliest days of this classroom concept. In this case, Wakefield 2'x4' Beta recessed units were used. For a new brochure on the Beta, and other individual brochures on the Wakefield Ceiling, Wakefield Geometrics and Wakefield luminaires of advanced design, write to The F. W. Wakefield Brass Company, Vermilion, Ohio. In Canada: Wakefield Lighting Limited, London, Ontario.

Wakefield **Over-ALL Lighting**





Interiors of Butler steel buildings permit most effective use of space. Note, easy-to-install insulation and space for portable bleachers.



Modern, sanitary kitchen shows adaptability and flexibility of Butler buildings. Here pupils are taught practical home economics.

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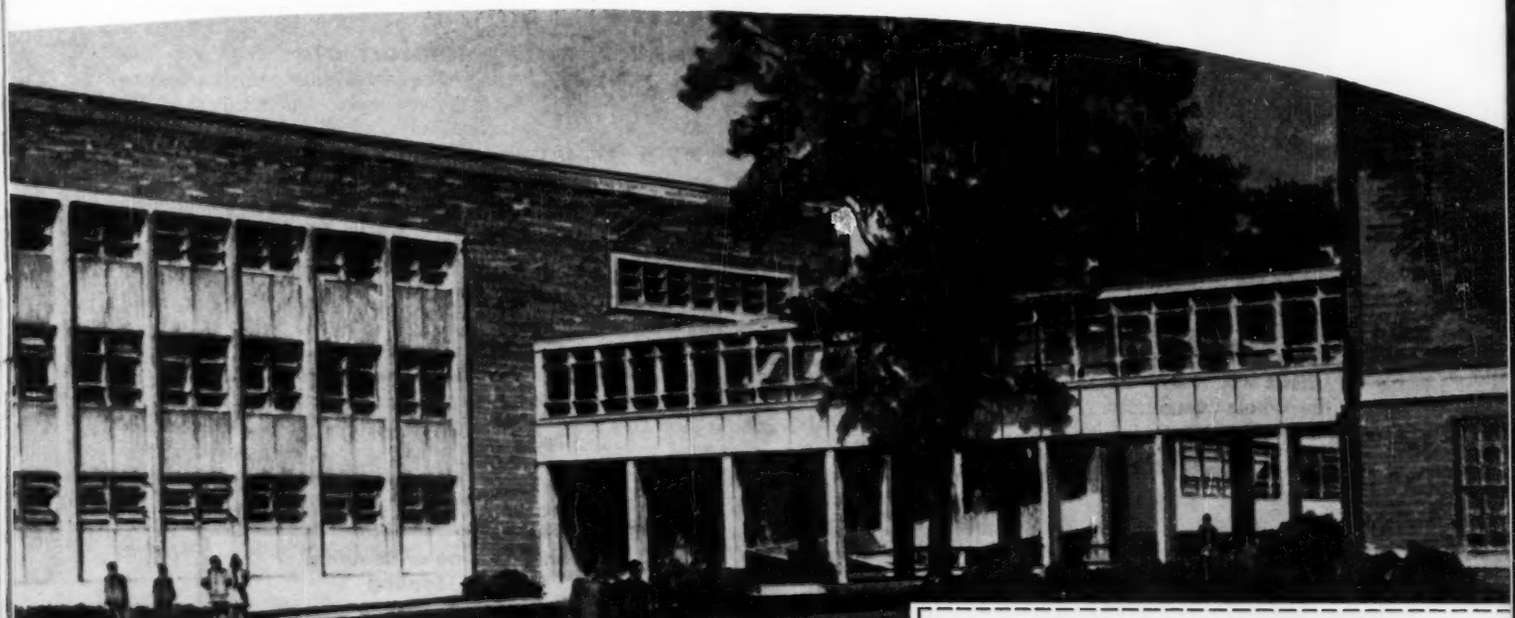

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THE AMERICAN
School Board Journal
A Periodical of School Administration

JANUARY 1955

Integrating School and City Planning

DAN S. MARTIN

**Formerly Director, Office of Planning and Construction
Orleans Parish School Board
New Orleans, La.**

In New Orleans a visitor driving from the old uptown Carrollton section of the city to the newer downtown, Gentilly and lakefront area will see two different kinds of school buildings. One kind — built with little or no planning for the future — can be seen on small crowded sites fronting on major streets and highways; another kind — built within recent years according to good city planning principles — can be seen on generous sites well located in the center of the neighborhood they serve. These schools are different because the approach to school planning has changed. New Orleans school officials and citizens are beginning to realize that school construction must be planned as an integral part of the over-all city development program.

This does not mean that New Orleans has found all the answers to school planning — far from it. Citizens and school officials alike in New Orleans still have far to go in developing workable techniques for well-planned, well-designed economical school construction. Yet significant progress has been made. If a genuine program of long range school planning is continued by maintaining a competent well-trained technical planning staff, New Orleans should make worth-while contributions to the relatively new field of long range school plant planning.

The Changing Scene

In most cities throughout the nation the story is the same — rapid school enrollment increases creating serious classroom shortages. At the same time construction programs involving industrial and commercial building, street and expressway construction, slum clearance and urban redevelopment, housing development and similar construction are changing the faces of our cities. Many construction projects bring about changes in density of residential areas and sometime relocation of families rendering it essential that new schools be carefully planned to fit into the whole picture. School administrators find that zoning and subdivision regulations now require the schools as well as business to provide off-street parking space, adequate yard and open spaces around buildings, and in general to fit buildings into the character of the residential area.

These conditions have made it essential that school planning be accomplished as a part of the over-all city plan. As a result of close co-ordination between the planners of the Orleans Parish School Board and the city of New Orleans, everyone was recently saved the embarrassment of beginning the construction of a school building in the very path of the new Mississippi River bridge approach. Because of the confidential nature of the right-of-way acquisition studies, only the consulting engineers and the planners in the City Planning Commission knew the exact location of the bridge approaches.

Not only is the planning of school buildings on a comprehensive long range basis becoming a necessity, but the need for a continuing school planning program is generally being recognized. In New Orleans, for example, the original long range school construction plan was prepared in the fall of 1951. The plan was revised in 1953 and again in 1954. The most recent revision, based upon up-to-date information on births, population changes, and school enrollments recommended the reduction in capacities of many proposed schools. This recommendation will enable the school board to save millions of dollars of limited building fund monies. Equally important, the planning technicians, by constant study and reappraisal, were able to keep the school board informed of current conditions.

With the rapid growth of cities and towns, and with school planning becoming more and more complicated, it is not surprising that today many school boards and school administrators are calling upon the city planner to assist them in developing their school construction program. School superintendents, their time absorbed with school problems made more acute by rapid enrollment increases, are beginning to realize that long range school planning requires professionals especially trained and experienced for the job at hand.

A Needed Distinction

It is well for the school administrator to make a distinction between "school plant planning," and "school building design." Both are essential features of a school construction program, but the former falls within the field of city planning and the latter comes within the field of architecture. The school administrator who understands the capabilities and limitations of each of these professionals will probably achieve

well-planned and well-designed schools.

The city planner is trained to consider school development as it relates to over-all city development. He must study population change, school enrollments, direction and extent of city growth and he must make predictions for the future. The number of children living in a particular neighborhood has more meaning to him than merely how many school children live in the entire city. Elementary schools, for instance, are planned to serve particular neighborhoods and one neighborhood will differ from another in respect to a need for school facilities. In New Orleans there is actually a surplus of school space in the elementary division when considered on a total enrollment and total school capacity basis. Yet considered neighborhood by neighborhood, a serious shortage of elementary school classrooms exists. Some of the children must be bused several miles to school.

The architect, on the other hand, must translate school needs in terms of the number of students to be accomodated and the facilities needed to serve them into a functional, attractive, and economical school plant. He must design and construct the school plant to meet educational needs. In preparing the design, the architect offers suggestions to the school administrators to improve efficiency of operation and to keep construction and maintenance costs low. For example, one New Orleans architectural firm designed a classroom at the end of the cafeteria with its floor raised about three feet. The space under the classroom was equipped with tracks and dollies for the storage of chairs and tables used in the cafeteria. When the cafeteria is used as an assembly hall, folding doors which form a wall of the classroom, fold to each side to permit the room to be used as a stage.

Long range school plant planning has paid off in New Orleans in many ways. The savings during the past three and one-half years in site selection alone has conservatively been estimated at $1,000,000. This very substantial sum resulted from the purchase of land in outlying areas prior to development or during the subdivision design stage. Land at such a time is relatively cheap and a well-located site can be selected easily. No price tag can be placed upon the benefits derived from carefully planning schools to reduce hazards to the children traveling to and from school. Nor is it easy to calculate the savings which result from properly sizing the schools. Most cities today have dismal evidence of improper sizing of schools, or a lack of consideration to the changing character of the neighborhood. The important point here is that these savings can be made by a program of long range planning. Without a plan there is nothing to serve as a guide in purchasing land, or the timing of construction of schools. The "guesswork" approach or "let's try this" is too costly these days, especially when it can be done right.

The Budget Comes First

Before a school board builds a school or before it even selects an architect for that matter, it is well for the board and the school administrators to determine the kind, size, and budget of the proposed school. Many school boards prepare a written program for construction. In such a program the physical requirements of the building from an educational standpoint are listed. For example, the amount of chalkboard and tackboard should be stipulated since the school administrators should certainly have a better idea of what they need than the architect. Also, school administrators and educators are in a position to determine the essential facilities needed such as whether a cafeteria or auditorium will be included in the construction.

Also in the programming stage, worthwhile preliminary work essential to the construction can be accomplished. An investigation can be made into problems connected with servicing the school site with streets and utilities, or perhaps it will be necessary to negotiate with the city officials to close a street which divides the school site. On the west bank of New Orleans a school site centrally located between two residential developments required the construction of a street, a drainage canal, a sewerage pumping station, a water main, a gas main, and electric power lines. School board planners took the lead in calling conferences with city officials and the land developer who donated the school site to arrange for sharing the expense of the required street and utility construction. An agreement was finally arrived at whereby the required improvements were financed. The working out of the agreement hardly could have been delegated to the architectural firm designing the building, nor was the time consuming and technical task one for the educators or administrators. Yet the work was an essential part of the program and had to be accomplished before the school could be designed or built.

Reducing Costs

In New Orleans there has been a constant battle to reduce school construction costs consistent with durable construction and low cost maintenance. Unfortunately, unless very careful study is given to ways and means of reducing school costs, a sacrifice will be made in quality and operating cost. For example, gypsum board walls on wood studs are less expensive than a plaster wall. Yet a sheet rock wall is not very durable and is easily damaged by children kicking or bumping it.

Hardwood floors are longer lasting and easier to keep in good condition than asphalt tile on concrete. Yet hardwood floors are much more expensive to install than the asphalt tile.

Compressed wood board for toilet and shower rooms is initially much less in cost than glazed tile walls. However there is no comparison in the maintenance cost.

There appears to be no question that the objective of most school boards throughout the country is to find the best materials suitable for school construction considering factors such as climate, cost of installation, and cost of maintenance. Certainly the financial condition of the school district, and the construction problems peculiar to each community will have a very definite effect upon the kind and quality of school buildings constructed.

In New Orleans we have found that certain construction materials are well suited to our climate and represent a saving over other materials designed to accomplish the same purpose. That is not to say that if unlimited building funds were available, different materials would not be used. Constantly minimum acceptable standards of construction must be weighed against the financial condition of the school board and the need for school construction.

Concrete has been used very effectively in our school construction. Several schools with a square foot construction cost of around $12 were designed and constructed of reinforced concrete. Concrete blocks have also been found to be very satisfactory for interior walls and partitions. Cement bricks are being specified on a school soon to be constructed to observe their performance and to check their cost.

Plywood is being used in great quantity in New Orleans schools. Plywood panels are especially suited for interior partitions, shelves, and storage cabinets. Not only is construction speeded up by use of plywood, but when properly finished, this material makes very attractive and durable walls.

The use of unpainted brick for interior partition walls has been quite acceptable. It simplifies construction of the end walls of classroom wings since no provision must be made to plaster the interior surface of a brick wall.

Factory constructed roof panels have proved a very economical type of roof construction. They are quick to install, do not need finishing or painting, and provide a measure of insulation and acoustical treatment.

Exposed bar joists have been popular in New Orleans school construction. The joists are light, strong, and can easily span a classroom.

It is well to make the point that what may be good for the goose may not be good for the gander. Climate, freight rates on materials, local labor rates, and many other factors influence the acceptability and the cost of building materials. A careful study and appraisal of school construction and performance of materials will provide a basis for improving the selection of construction materials and in lowering school costs.

Before the Architect Begins

EARLE W. WILTSE

Superintendent of Schools
Grand Island, Neb.

Recently, an architect showed me a one-page letter he had received from a school superintendent where the voters just approved a $180,000 bond issue for a new high school. The letter directed him to proceed at once with the preparation of plans and specifications for a modern fireproof structure to house 125 pupils in grades nine to twelve. The letter indicated the need for an auditorium-gymnasium with a standard basketball playing floor, roll-away bleachers for 500 spectators, and an "adequate" stage. The architect was told not to forget proper toilet and shower facilities and to be sure one room was equipped for science teaching. There was also to be a combination library-study hall. If finances allow, the school "should have a lunchroom adjoining the homemaking department."

Because of such superficial, careless educational planning as this, many new high schools are obsolete even before they are built.

The educational planning of a new high school plant should not be left to even the best school architect. Nor should it grow out of the fertile brain of the superintendent of schools. It should embody the cooperative thinking of many people, including the members of the board of education, the school executives, the entire high school teaching staff, the custodians, the students, and a host of taxpaying citizens. Where curriculum changes are to be considered, an educational consultant may be required. The people who pay the taxes and own the schools should be involved in all phases of the planning. It is their school.

Shortly after the voters in Grand Island, Neb., approved a $4,000,000 bond issue for school improvement in February, 1952[1] committees of teachers, students, and citizens were appointed by the board of education to draw up the requirements for a new senior high school to house 1500 students. By December, 1952, a total of 18 committees had prepared for the architect a set of educational specifications, 197 pages in length. The architect was guided by this document as he developed his plans for the new structure. In September, 1953, contracts were let for a single story, finger-type structure to cost $2,500,000.

The educational document contains 17 chapters. It was prepared by 18 committees. Titles of the chapters suggest the nature of the content. They are as follows:

Chapters

I. **A Basis for the Design**
II. **General Features**
III. **The Administrative and Counseling Areas**
IV. **The Library**
V. **The Auditorium and Little Theatre Areas**
VI. **Language Arts**
VII. **The Social Science Area**
VIII. **The Mathematics Area**
IX. **The Science Area**
X. **Commercial Area**
XI. **Industrial Arts, Fine Arts, and Vocational Education**
XII. **The Music Area**
XIII. **The Health Unit**
XIV. **Physical Education Department**
Part I. **Girls' Physical Education**
Part II. **Boys' Physical Education**
XV. **The Faculty Study Area**
XVI. **The Cafeteria**
XVII. **The Home Making Department**

In preparing Chapter I, "A Basis for the Design of the New Secondary School," a steering committee studied the current high school program, and considered the desirable future educational needs of youth. The group also was guided by William W. Caudill's bulletin "An Approach to the Design of a High School." The six, salient considerations proposed in Caudill's bulletin were reworked to suit Grand Island's needs and then adopted as a guide for all committees. The six basic considerations and their implications are:

1. *The high school population will continue to grow.* Therefore, the school must be designed so that it can be expanded economically and efficiently without marring the beauty of the school building.
2. *The curriculum will continue to change.* Therefore, the building must really be flexible. Classrooms, laboratories, and shops must be designed for economical and efficient adaptations to these changes.
3. *High school students will spend much time in halls and corridors.* Therefore, these areas should be designed to help achieve the aims of the educational program. They must be more than walking spaces.
4. *A well-balanced, effective program of education will accent communications among students in the classroom, as well as communication between the teacher and the group.* Therefore, teaching areas should be designed to allow flexibility of room arrangement, including seating.
5. *The school plant will be used extensively for community improvement, education, and recreation.* Therefore, the plant should be designed to facilitate community use. This means proper zoning of the main architectural elements. Those elements which are to be used by both students and the public, such as the gymnasium and auditorium, should be grouped in one zone for efficient use and economical maintenance. Summer use of the auditorium, and additional selected areas, may indicate air conditioning for those areas.
6. *The school plant should be an attractive center for boys and girls of high school age.* Therefore, it should be planned and equipped in such a way that the students will consider it the most desirable place in the community to learn, work, and play together.

All committees were given a copy of the "Basis for Design." It served as a guide in the work of all committees. Meetings were held weekly, under the chairmanship of a teacher, until all reports were completed. Reports were then edited and mimeographed in the superintendent's office. A local printer prepared a printed cover and bound the reports. Several copies were furnished to the architect. Single copies went to all committee members and to the school board members.

Many benefits result when the citizens are involved in planning their schools. In the first place, teachers and citizens all benefit from working together on a common cause.

Take the shop area (Chapter XI) as an example. Twenty people assisted in preparing this chapter. In addition to four

[1]For an account of the bond campaign, see Dr. Wiltse's article "No Halfday Sessions," *N.E.A. Journal*, Nov., 1952.

teachers and two students, the personnel of the committee included two farmers, a farm loan representative, a building contractor, a jeweler, a planing mill foreman, two representatives of the local Labor Temple, a car salesman, a wholesale auto parts dealer and others. This committee gave literally hundreds of man-hours of time to the planning of the vocational wing of the new high school. The discussions and the exchange of ideas at the meetings resulted in total agreement among members of the group regarding the aims and functions of vocational education. Once this agreement was reached, preparation of a description of needed facilities became comparatively simple.

Second, teachers have to re-examine the educational program in light of new demands. They grow professionally therefrom. Planning the new high school building made it necessary for the entire high school staff to study, together with taxpayers, the purposes of secondary education. Parents questioned. All discussed. The result is an improved curriculum, a modern plant to house the new program, but best of all, a growing staff.

In the third place, the architect can design a modern, functional, and economical school building that is based on careful advanced thinking on the part of many people.

Fourth, community pride and loyalty are definite results. Criticism is not often heard. When it is heard, the critics are answered by the people. It is their school.

Good will and understanding are a very important by-product of community planning. They make for desirable public relations.

The board of education was the final approving authority on all committee reports. A committee of the board visited new high school buildings in Kalamazoo, Dearborn, and Birmingham, Mich.; Salina and Wichita, Kans.; and Reno, Nev. Kodachrome pictures were taken of these buildings showing many of the new features. These were studied by the several committees. The board of education and the architect furnished an educational consultant, Wilfred F. Clapp, of Lansing, Mich., to assist the committees with the planning. Mr. Clapp met with groups during a four-day period to help get the planning under way.

A "New" Building

The people who own and pay for the schools should have a direct voice in planning them. When the machinery is properly set up for community planning, everyone benefits. Understanding between teachers and parents grows. The architect is not left "in the dark." He, therefore, can design a school that is economical, modern, and is in keeping with what the people want. The children are assured of a school that is not 20 years old the day they move in.

A Rural School —

The Sandy Valley High School

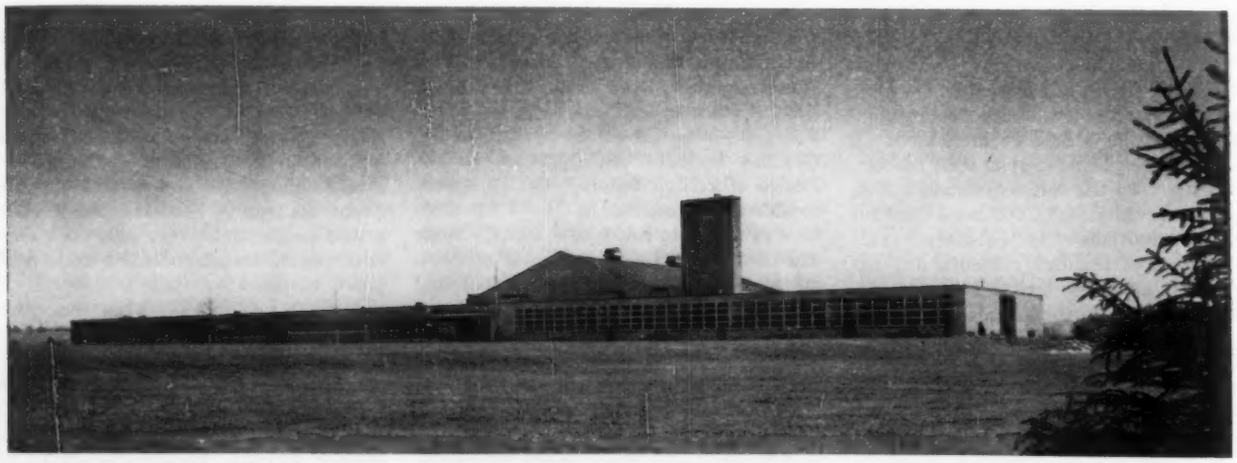
RALPH G. DIX, JR.
Architect
Canton, Ohio

The new Sandy Valley High School building serves a consolidated school district formed of three small units in Stark County, Ohio, south of the city of Canton.

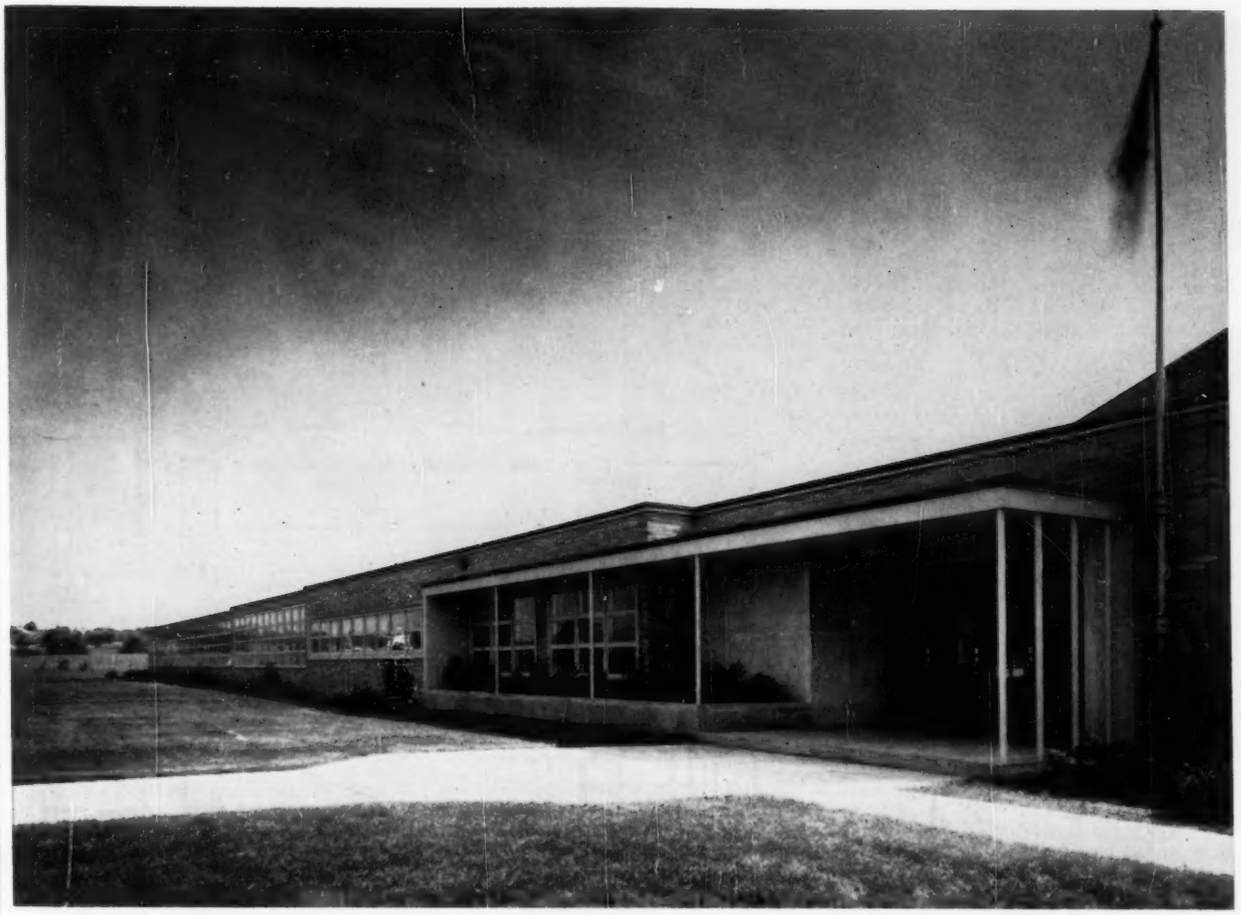
The building occupies a 50-acre plot, of which 30 acres are used for the school building, campus, and athletic field. The remaining 20 acres consist of a beautiful wooded slope and bottom lands, well suited for biology field work. The site which is on two main highways in the center of the school district, cost $13,500.

The educational planning was carried on to anticipate an enrollment of 630 pupils, affording a broad program of instruction suited to a cosmopolitan rural population. The building is one story and includes an auditorium-gymnasium and a cafeteria, all arranged for community as well as for formal school work.

The Administrative Unit. For administra-



A general view of the Sandy Valley High School, Stark County, Ohio — Ralph G. Dix, Jr., Architect, Canton



The Sandy Valley High School, Stark County, Ohio — Ralph G. Dix, Jr., Architect, Canton

ve and general service purposes, the building ncludes carefully placed entrances and an pen lobby; general offices and a waiting oom; a superintendent's office; a principal's ffice; a conference and meeting room for the oard of education; a conference room for eachers, pupils, and parents; a mimeograph nd program room; a fireproof vault and stor-ge space; a health clinic; and a ticket office. he lavatories have been carefully located for oth student and adult use.

The Library. The library, which seats 72 tudents, has shelving for 5800 to 6000 books. pecial space has been arranged for the li-rarian's administrative work and book re-eiving and repair room.

The Science Section. The science unit in-ludes a multi-purpose laboratory, a separate hysics laboratory, and experiment prepara-ion room, a darkroom, and storage space.

The Academic Rooms. The classrooms in-lude two rooms each for languages, mathe-natics, and social studies, and one room for rt. Between two of the classrooms there is a olling partition and at one end a small plat-orm so arranged that the two rooms form a ittle theater and student meeting room.

Business Education. Two classrooms, with torage area, provide complete space for teach-ng business machine operation, bookkeeping, horthand, and other business studies. A nimeograph room is provided.

Home Economics. The home-economics area ncludes a completely equipped foods labora-tory, a laundry room, a clothing laboratory, supplementary storage rooms, etc.

Music. The band room and choral room will seat 125 students. Adjoining it are prac-tice rooms, music appreciation room, an office, and general storage rooms.

Industrial Arts. A large general shop de-signed for future expansion is equipped for

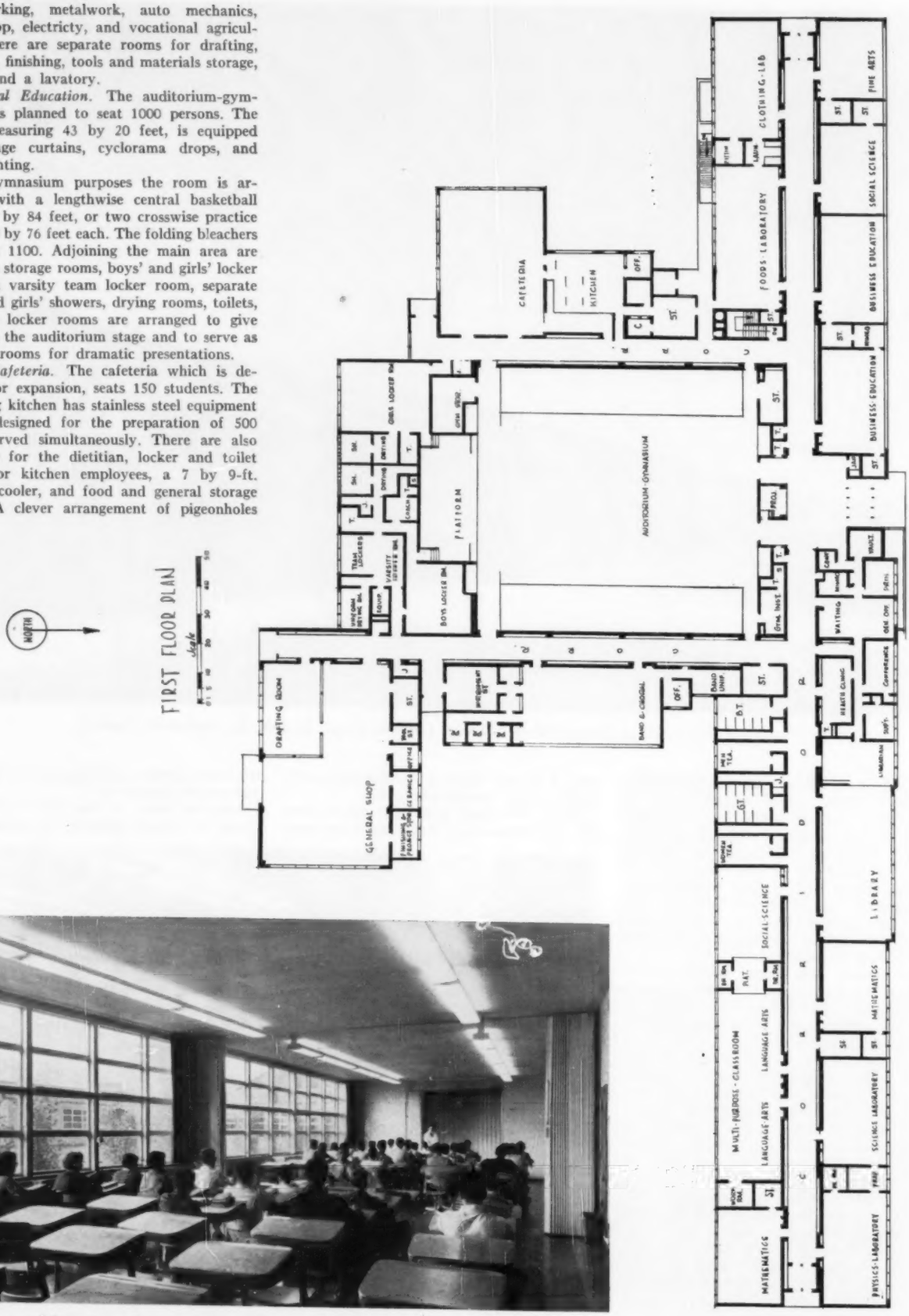
The pleasant library seats 72 students, has space for approximately 6000 books.

woodworking, metalwork, auto mechanics, farm shop, electricty, and vocational agriculture. There are separate rooms for drafting, ceramics, finishing, tools and materials storage, offices, and a lavatory.

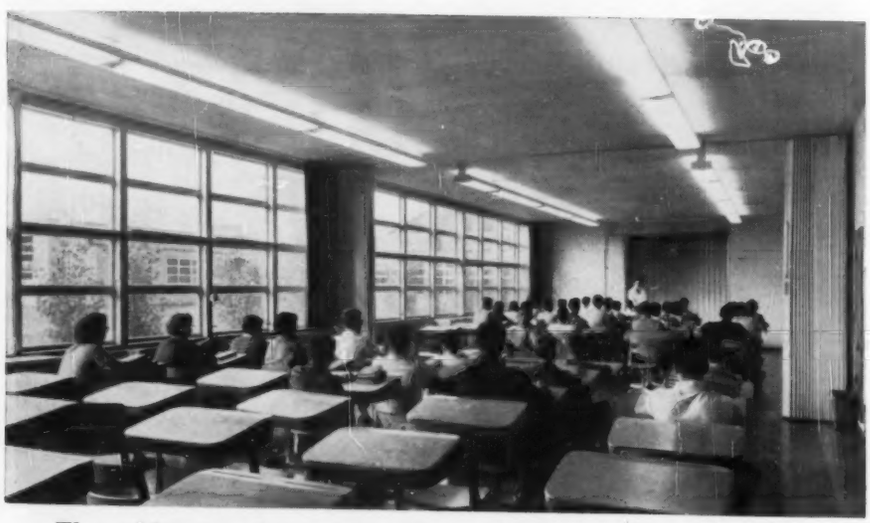
Physical Education. The auditorium-gymnasium is planned to seat 1000 persons. The stage, measuring 43 by 20 feet, is equipped with stage curtains, cyclorama drops, and stage lighting.

For gymnasium purposes the room is arranged with a lengthwise central basketball court 50 by 84 feet, or two crosswise practice courts 40 by 76 feet each. The folding bleachers will seat 1100. Adjoining the main area are complete storage rooms, boys' and girls' locker rooms, a varsity team locker room, separate boys' and girls' showers, drying rooms, toilets, etc. The locker rooms are arranged to give access to the auditorium stage and to serve as dressing rooms for dramatic presentations.

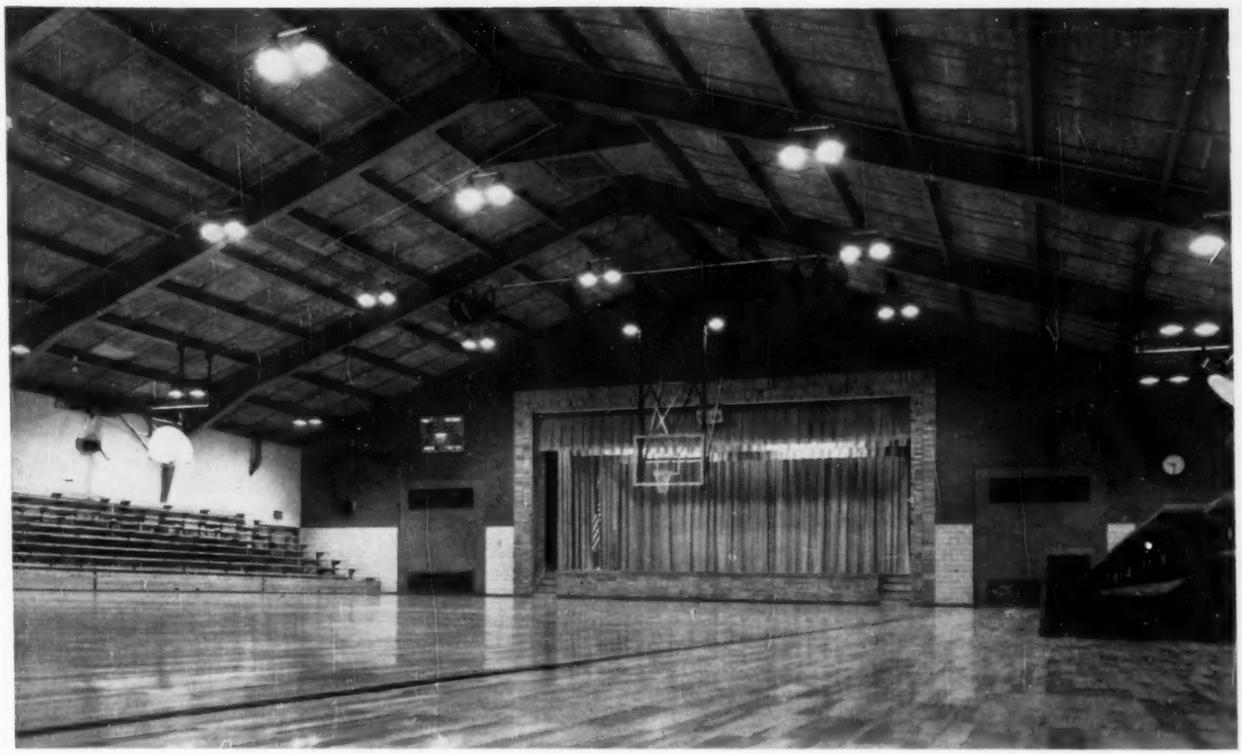
The Cafeteria. The cafeteria which is designed for expansion, seats 150 students. The adjoining kitchen has stainless steel equipment and is designed for the preparation of 500 meals served simultaneously. There are also an office for the dietitian, locker and toilet rooms for kitchen employees, a 7 by 9-ft. walk-in cooler, and food and general storage rooms. A clever arrangement of pigeonholes



The Sandy Valley High School, Stark County, Ohio — Ralph G. Dix, Jr., Architect, Canton



The multi-purpose classroom serves as a study hall, visual education room, meeting place for the community, or as two separate classrooms.



The locker rooms adjoin the stage of the auditorium-gymnasium and double as dressing rooms for dramatic activities.

adjacent to the cafeteria serving line eliminates the necessity of pupils carrying their books into the cafeteria.

The Service Rooms. The boiler room which is fitted with three stoker-operated steam boilers, includes fuel and ash storage rooms, an incinerator, and an electric controls room.

The classrooms are heated with unit ventilators; the gymnasium-auditorium, with unit heaters. The arrangements for the janitors include five carefully located rooms with built-in sinks. There is a yard maintenance equipment storage room at ground level, entered from the outdoors.

The Construction. The building which is one-story high, is of brick and concrete block construction, with a reinforced concrete slab floor. Expansion joints and control joints are located throughout the building to properly control the expansion and contraction of the concrete block walls, partitions, and concrete floors. The roof deck is of 3-inch incombustible gypsum and wood fiber insulating material, which permits four foot spacing of the roof joints and simultaneously provides insulation, a roof deck, and acoustical treatment over the perforated asbestos board ceilings. The pipe tunnels are all constructed of concrete block with cement floors and ceilings to provide easy access for maintenance and repair of the utilities services.

The finish has been carefully adjusted to the use and the wear-and-tear of the different areas. The door frames throughout are steel; the exterior doors are metal; the interior doors are wood or fireproof calamine. The wood windows have awning type ventilating units where needed. Ceramic glaze tile has been placed on lobby, toilet room, and shower room walls. Salt-glaze tile from floor to ceiling is used in locker rooms. Finish floors are quarry tile in lobby; mosaic tile in toilets and shower rooms; asphalt tile in classrooms, offices, etc.; cork in library and music rooms. Ceilings are plaster on metal lath and acoustic tile in lobby, corridors, music suite, and library; classrooms have perforated asbestos board ceilings.

The auditorium-gymnasium is constructed with steel rigid arch frame. The ceiling is of insulrock which has been left exposed and which has been found to have excellent acoustic qualities.

The total original contracts amounted to $734,000 and the final contract to $736,000. Less cost of equipment, the construction cost of the building was $676,000, or 94 cents per cubic foot, or $12.72 per square foot. The building accommodates 630 students, which amounts to $1,073 per student.

The architectural planning and supervision was provided by Ralph G. Dix, Jr., A.I.A., Canton, Ohio; William T. Colloredo, Memphis, Tenn., was the landscape architect. John Paul Jones, Cary & Millar, Cleveland, were the consulting engineers, and Barber & Magee, Cleveland, the structural engineers.

The completely equipped foods laboratory

The Final Step —

Some Criteria for Evaluating a School Building

B. EVERARD BLANCHARD
Plymouth Teachers College
Plymouth, N. H.

In the years just ahead, school building construction may take an unprecedented leap forward. Several competent studies have estimated that possibly some 25 to 30 billion dollars of school buildings will be constructed between now and 1960. The need for more construction may be even more pressing than anticipated. Buildings erected today will no doubt be in use some fifty years from now, even though the experiences that communities want their children to have will have changed radically. Hence, the growing concern which is presently manifest in school design and flexibility.

Gathering and Distributing Facts

To guide the thinking of those communities contemplating such building plans, *The Twenty-seventh Yearbook of the American Association of School Administrators* lists details that might be considered in such planning:[1]

1. To conduct and direct research that will determine the relationship of new or altered buildings to a forward-looking educational program and to interpret research to the board of education, the staff, and the community.
2. To guide, with reliable facts, the policy formation of the board in its many basic decisions in school-plant planning.
3. To establish and maintain, for each building project, a chronological schedule and record of all decisions, transactions, and steps taken from its inception by the board of education to the dedication of the building.
4. To secure co-operative planning of the principals, teachers, and community in developing the total building program and in the immediate planning of a school project.
5. To convey to architects and other specialists a clearly stated program of the educational services to be implemented by the building.
6. To consult with the architect and other specialists on interpretation of the agreed-upon program and on the educational evaluation of proposed solutions to the problems presented.
7. To assist the board of education in fair presentation of the building program to the community and developing a financial plan for servicing the building program.
8. To develop plans for the maximum use and preservation of the building by the staff and the community.
9. To translate all planning into a creative and constructive program of education when the building is complete.

Some Building Requirements

As a further guide to planning modern educational school buildings, Hagman suggests 16 principles.[2] Three samples of principles are as follows:

1. The building should be economical in operation so that school funds are not diverted excessively to the support of noneducational functions.
2. Public use of the building should be assisted by the placement and arrangement of units most in use.
3. Fire escapes should be within the building. Stairways should be in fire wells built independently of the main structure. Units of the buildings should be separated by fire walls permitting the isolation of fire.

A Test for School Plants

A comparable list of guiding principles expressed in more general terms is advocated by the Twenty-seventh Yearbook.[3] These measures are suggested under the heading entitled, "Do Your School Buildings Pass This Test?"

Curriculum adequacy — Do they provide the space and facilities for the educational program that your community needs for its children, youth, and adults?

Safety and well-being — Do they not only protect against danger but also provide a positive influence for improving the health and physical welfare of the pupils?

Interfunctional co-ordination — Are they so planned that the activity in each part of a building may be co-ordinated harmoniously with related activities and may be carried on effectively without disturbing other activities?

Efficiency and utility — Are they so planned that the handling of materials and the comings and goings of pupils, school staff, and the public are accomplished with a minimum of interference and a maximum of ease and satisfaction to all concerned?

Beauty — Are they pleasing in appearance, with simplicity, usefulness, and balance as ideals, rather than ornamentation or symmetry?

Adaptability — Are they so planned that they can be enlarged or rearranged internally to meet new educational demands with a minimum of additional cost?

Economy — Are they so planned that in original outlay and in future operation the utmost in educational utility can be secured for every dollar spent?

It is difficult to imagine how a school building could be constructed without some consideration for those who will have to live, teach, and learn within its walls. Equally important, perhaps, is the school-community relationship, which should provide for an ever expanding and increasingly effective program of education. There must be co-operation on a joint basis in setting up the probable educational objectives of the school, utilization of community resources to enrich the educational experiences for youth, and educational interpretation between the school and the community.

Principles for Community Use

In stressing the importance of home-school-community relationships, Yeager suggests[4] a list of principles for wider use

[1] *American School Buildings*, Twenty-seventh Yearbook, American Association of School Administrators, Washington, 1949, pp. 23–24. Quoted by permission.

[2] By permission from *The Administration of American Public Schools*, by Harlan L. Hagman. Copyright, 1951, McGraw-Hill Book Co., Inc., pp. 306–307.

[3] *Op cit.*, p. 8. Quoted by permission.

[4] Yeager, William A., *Home-School-Community Relations*, Pittsburgh: University of Pittsburgh, University Book Store, 1939, p. 132. Quoted by permission of the author.

of school buildings for purposes other than the formal education of childhood which in some respects might be used as an evaluative device by public school systems to determine if they are encouraging the concept of bringing all three agencies together as a unit in attempting to solve their problems.

1. Knowledge of all legal limitations in regard to the use of school buildings as found in the school laws and the decisions of the courts.

2. Recognition that public education to serve the community well should extend its educational facilities and resources to all groups desiring these facilities and resources within legal limitations and rules and regulations of the board of education.

3. Adoption by the board of education of suitable rules and regulations and a workable policy which can be administered impartially and with reasonable ease. Such a policy should include reasonable fees for the use of the school's facilities, at least in certain cases, which should cover heat, light, power, janitor service, and if found desirable, reasonable wear and tear on apparatus or equipment.

4. Survey of the activities and organizations of the community who may be desirous of using the public school's facilities for purposes wholly, or in part, educational.

5. Adaptation of a program and schedule for all activities and organizations under adequate administrative direction.

6. Utilization of every means at the disposal of the school authorities to appraise the worthwhileness of this program and to utilize these opportunities in developing more desirable home-school-community relations with more adequate public education as the desired goal.

Actually, what every community needs in its schoolhouse is a building which will make it possible to achieve the best ends and best means of education and simultaneously provide opportunities for improving the educational program for the future.

Louisville Uses Lift-Slab Construction

SAMUEL V. NOE

Administrative Assistant
Louisville Public Schools
Louisville, Ky.

The Louisville board of education has awarded contracts totaling $1,820,640 for construction of a combined elementary and junior high school to be known as the Joseph S. Cotter Elementary School and Lucie N. DuValle Junior High School. It is being built by the lift slab method of construction.

William C. Tyler, Jr., member of the architects' firm of Arrasmith & Tyler, who designed the building and supervised its construction made the following comment concerning the lift slab method:

The flat plate slab design reduces over-all floor height which in turn is one of the over-all cost savings. The speed of this lift slab design permits a quick inclusion of the building structure, allowing the workmen and materials to be out of the reach of the weather in a very short time. The flat plate design permits cantilevered projections at a minimum of cost, forming a sun, rain, and snow shield over the building's walls. This protection would also reduce the cost of wall maintenance, such as tuck pointing of masonry joints; from the standpoint of fire insurance and safety of the occupants of the building, premiums are at a minimum.

From a designing standpoint, lift slab is most flexible, as none of the walls are load bearing. Another facet of this is that additions to the building at a later date can be made at a minimum of cost and effort. Each slab being self-supporting, continuous fenestration for light, sun, and air is provided without the cost of masonry carrying beams.

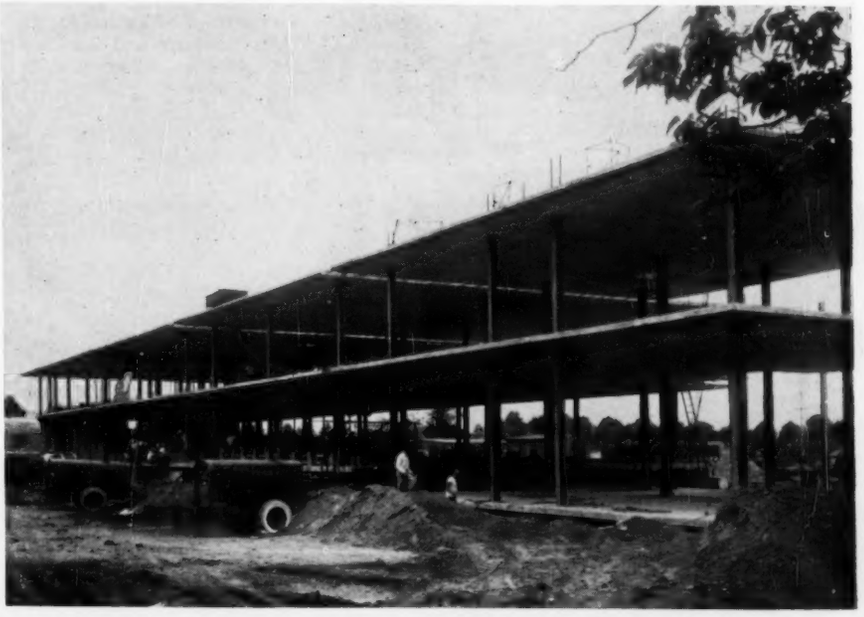
The over-all cost saving is approximately 15 to 20 per cent in relation to conventional construction, with a time saving of approximately 40 per cent. Concrete placement cost is in the neighborhood of 50 per cent less, and hazards to workmen are reduced to a minimum as all of these slabs are poured within two or three feet of the ground. Needless to say, this permits placement of materials without the use of hoists, cranes, and rigs.

More trades are able to work simultaneously as the slabs act as forms for other slabs, permitting electricians, plumbers, steel setters, carpenters, and other workmen access at the same time. The mechanical trades, such as electrical, plumbing, and heating, due to absolute alignment of one slab over the other, are able to project pipe, conduit, and metal duct work without the need of any vertical dimensioning.

Conventional concrete work requires the building of forms and the wrecking of same after concrete is poured. This operation requires a minimum of 11 days for each floor superimposed upon another. The lift slab eliminates this time lag.

The flat plate design is of utmost simplicity from the standpoint of reinforcing and structural steel, none of the bars being bent or welded and no connections of complication.

In all, it might be said that lift slab construction, on jobs adaptable to the form work, result in a considerable saving of time, money, and effort.



One of the advantages of lift-slab construction is the speed with which such a building can be erected due to the fact that electricians, plumbers, steel setters, carpenters, and other tradesmen can work simultaneously.

Clayton High School, Clayton, Missouri — Wm. B. Ittner, Inc., Architects-Engineers, St. Louis

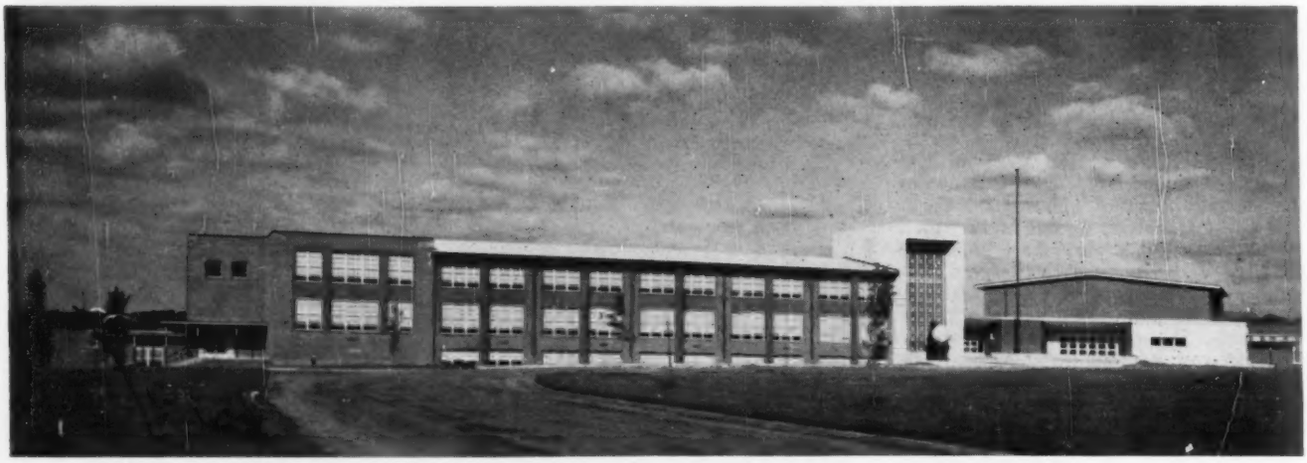
New Clayton High School, Clayton, Missouri

JOHN L. BRACKEN
Superintendent of Schools
Clayton, Mo.

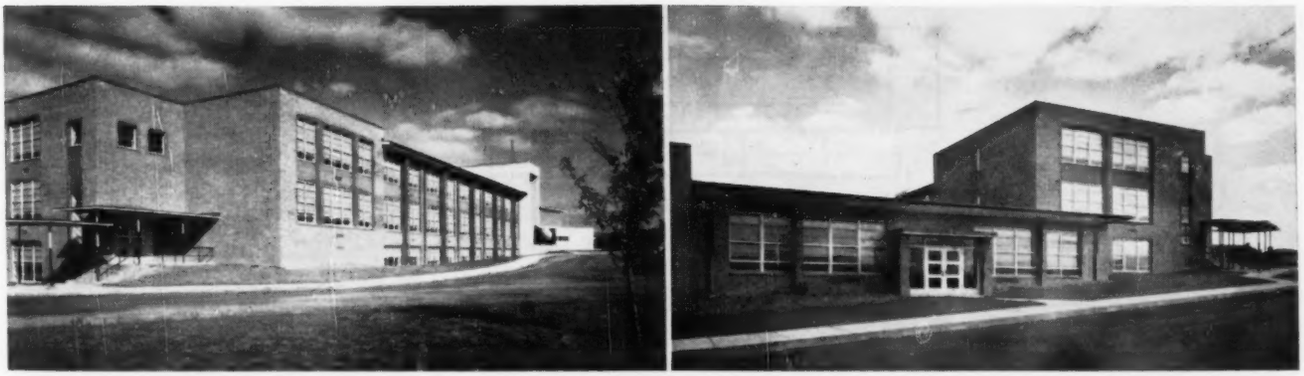
WM. B. ITTNER, INC.
Architects and Engineers
St. Louis, Mo.

The new Clayton High School occupies a site of 21.63 acres. This land was made available to the board of education by the Clayton City Administration and the Clayton Park Board and is an outstanding example of joint community planning by independent agencies. A Community Building, already approved by the voters and costing $250,000, is to be built by the Park Board adjacent to the high school site on park property.

With a site located in or adjacent to the public park of Clayton, the opportunity to capitalize on the large open spaces available could be best realized with an open style school plan rather than a single large block building. This consideration tied in nicely with the educational philosophy and plan-

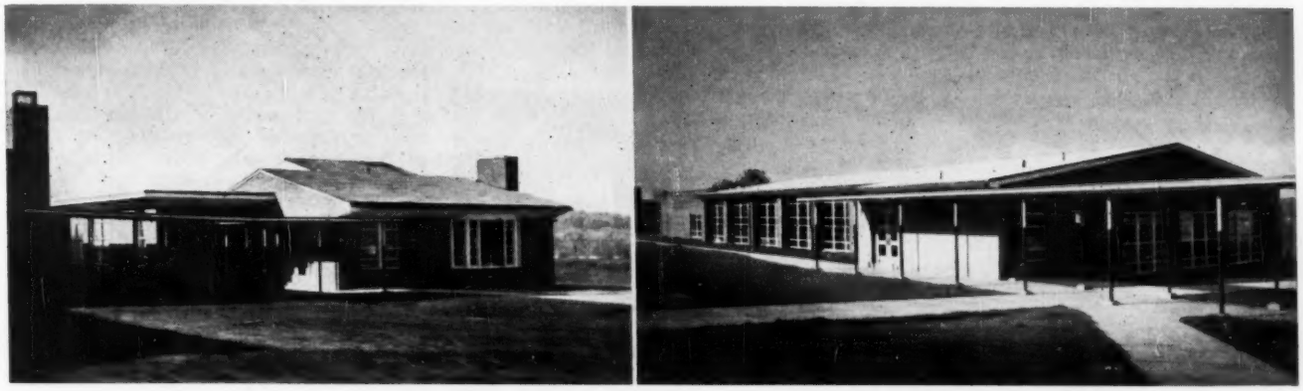


The main building of the campus-type high school, viewed from Shaw Park.



Left: *The covered passage-entrance to the main building for students arriving by car.* **Right:** *Future expansion is possible above the cafeteria.*

Left: *The main entrance element from the interior quadrangle.* **Right:** *The Little Theater and music buildings.*



Left: *"Clayton House" or the home economics department.* **Right:** *The industrial arts and bus garage-maintenance building.*

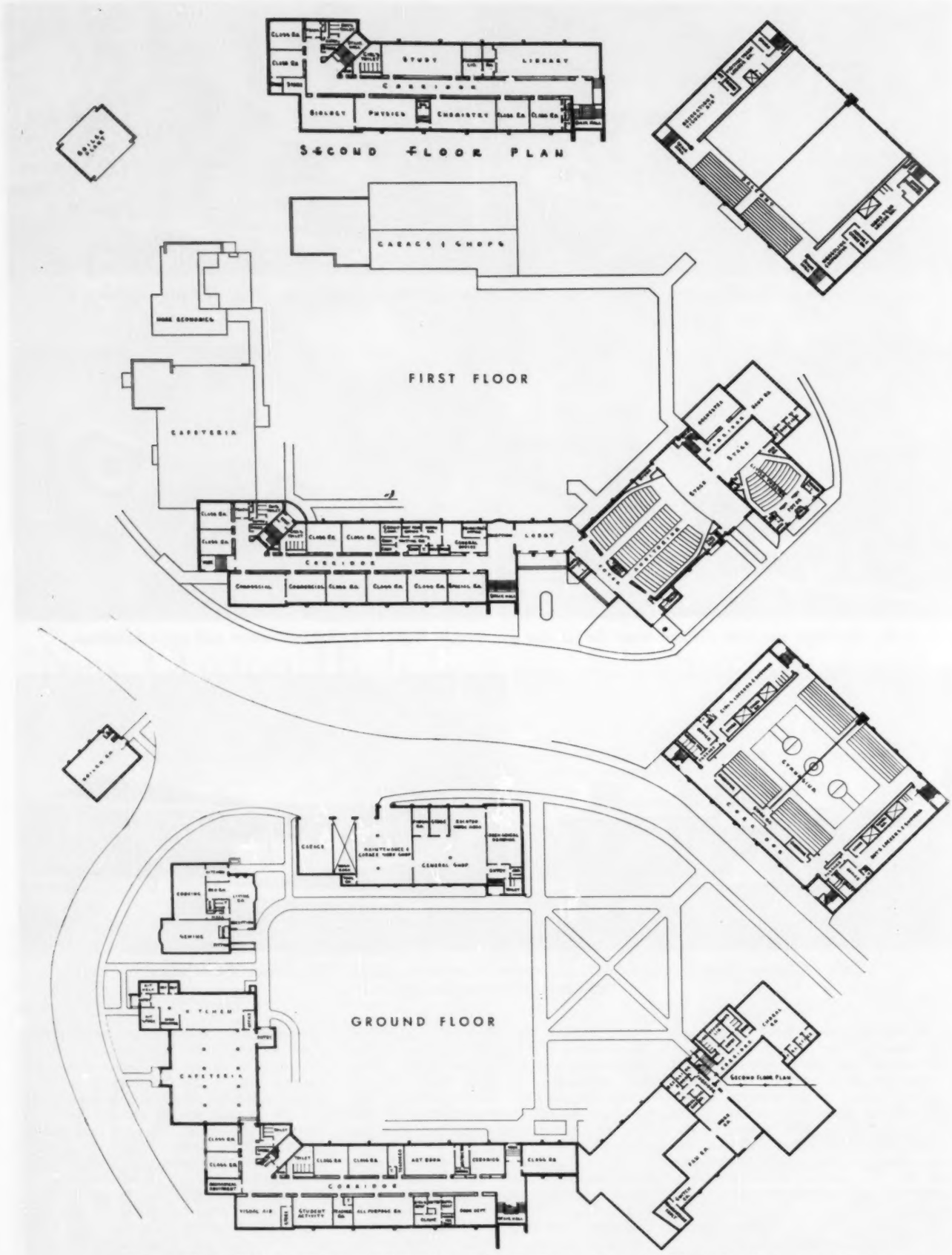
ning of Superintendent John L. Bracken and his board for the campus type plan.

The campus type school was the logical type of school plant to house the modern curriculum in use in the Clayton school system. Besides offering maximum opportunity for daylighting, ease of future additions, and articulated school facilities, the campus school permits a more imaginative setting for the various departments. In addition, any one building or department such as home economics, shop, Little Theatre, etc., can be used by adults at night without opening the entire school plant.

In general, the campus type of plan provides a less monumental, more intimately scaled facility for educational activities. Also, since a very large percentage of Clayton graduates go on to Universities, it was felt desirable to acquaint them with the college campus idea. The departments were carefully located in the buildings so that ease of intercommunication and joint use of facilities are possible.

The final product is the result of close knit co-operation between the superintendent and his staff, the board of education, and Wm. B. Ittner, Inc., the architects and engineers. This is believed to be the first complete secondary public school of the campus type in the Midwest.

The six buildings in the plant are of contemporary design, with construction about an open court approximately 300 by 185 feet in dimension. Covered arcades connect most of the buildings. A roadway encircles the buildings; the heating plant and the gymnasium are outside the circle drive. At the left of the main entrance to the group is the Academic Building. Immediately behind the Academic Building is the new Clayton House. Following the circle, the next building is the Industrial Arts Building, and after this is the Gymnasium. The building which completes the circle and is to the right of the main entrance contains Music Rooms, the Little Theatre, and the Auditorium. A parking lot is pro-



Clayton High School, Clayton, Missouri — Wm. B. Ittner, Inc., Architects-Engineers, St. Louis

To the left of the main entrance court is the academic wing, to the right, the auditorium.

vided behind the gymnasium and parking facilities for teachers are located on the circular drive next to the academic building. A covered passageway offers sheltered access to and from automobiles and buses in bad weather.

Student lockers are recessed in the hall corridors. Illuminated display cases are placed in the halls for student projects, particularly for the art and ceramics classes. Folding steel gates are provided so that, for evening use, a part of the plant may be used as a unit and closed off from other parts of the building.

Roofs are of a special white crushed rock. Liberal installation of glass block is made where it can be used to advantage. Lighting is incandescent, with ring-type fixtures. Only rooms where close work will be done are equipped with fluorescent fixtures. The interior tone of the building is light. Light-toned furniture is used throughout the building.

Every room in the plant which is used for instruction is acoustically treated. Each room has independent heat control. All classrooms are equipped with green chalkboard and tackboard space. Shelving for reference materials and wardrobe-storage cabinets of birch are supplied in each classroom. Floor treatment is of asphalt tile with color schemes varying from room to room.

All departments which require a great deal of activity and space or which involve disturbing sounds which could be distractive to other classes are housed in separate buildings.

The new Clayton House contains complete and charming facilities for teaching home economics. Industrial arts is housed in a separate building with adjoining rooms for mechanical drawing, storage of supplies, and finishing.

Foreign language rooms have soundproof booths for use of recordings in the learning of languages. Art and ceramics rooms adjoin each other in the Academic Building, and have a common supply room.

Music rooms are housed with the Little Theatre. Three large rehearsal rooms are provided for the major musical groups with adequate practice rooms, storage facilities for instruments, robes, music libraries, and offices for directors.

The science suite is on the upper floor of the Academic Building. Separate but connected rooms are provided for biology, chemistry, and physics. A darkroom for photography and a storeroom for science equipment and supplies complement the science suite.

The equipment for the auxiliary facilities of the New Clayton High School features mobility and functional design. Among these facilities are the library, the auditorium, the Little Theatre, the audio-visual room, the clinics, the beautifully furnished memorial room used as a reception chamber, the cafeteria, the student-club room, the principal's office, and administrative suite including counseling and conference rooms, and the tower room for teachers' reference work.

Last, but not least, is the gymnasium with modern equipment and facilities for boys' and girls' physical education. An electrically operated folding door creates two separate gymnasiums for physical education

(Concluded on page 114)

A view of the gymnasium from the interior quadrangle; note the covered arcades which connect many of the buildings.

Basic School Designs

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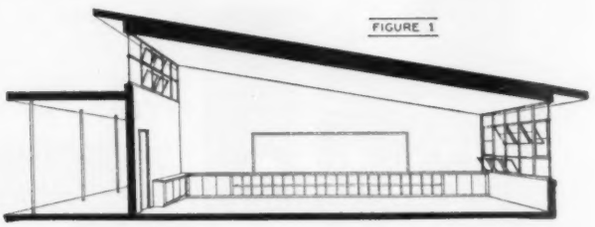
FIGURE 1



Not too long ago, school design was so stereotyped that there was little need to compare the possible advantages of one basic plan with those of another. In the past few years this situation has changed, as to over-all layout, shape, arrangement, and cross-sectional design.

The over-all layout, or floor plan arrangement, of schools can be broken down into two basic schemes, except for a relatively few experimental designs. These are the double-loaded and single-loaded corridor plans. They will be designated as types *D* and *S*, respectively, herein.

The Double-Loaded Corridor

The double-loaded corridor (type *D*), plan was the standardized approach to nearly all school planning until comparatively recent years. *Standardized* is unfortunately the correct word, since many schools still in use are no more than a collection of identical rooms, strung out along both sides of a corridor. It is quite possible that, because of the lack of imagination in the treatment of both rooms and corridors this type has acquired more disfavor than it may deserve. The double-loaded corridor can be well lighted, properly treated to eliminate the institutional atmosphere, and made interesting as well as educationally suitable by means of display cases and the like. The advantages of this type of plan include:

1. Economy of construction.
2. Less horizontal travel, due to the close grouping of rooms.
3. Economy in the use of land area.
4. Fewer exterior doors, as compared with single-loaded, open walkways, and hence improved security and weather protection.
5. The possibility of using corridor lockers, which present a security feature.
6. Lower heating costs, because there is less exterior wall exposure.
7. Improved supervision and control.

It may well be argued that none of the above advantages mean better educational facilities for the pupils and, admittedly, the educational aspects should be emphasized. That criticism is valid unless one other factor is introduced. If, on a fixed building budget, a saving is used to obtain added educational features, such as improved or larger general-purpose rooms, visual education facilities, a library or similar adjuncts, then the economy takes the form of more school for the dollar spent, rather than a cash saving as such.

Among the disadvantages of the double-loaded corridor plan, many of which can be minimized or eliminated by design study, are:

1. Less uniformity of natural light, the light intensity decreasing proportionately to the distance from the window wall.
2. Bilateral light obtainable only in one story construction, and then only by increased cost in roof designs.
3. Difficulty of obtaining adequate cross-ventilation.
4. Possible increase in distraction due to traffic through corridors.
5. Possible sound transference from one room to another across corridors. (Note that this same element is present in the *S* type plan where the elements are arranged in parallel fingers.

The Single-Loaded Corridor

The single-loaded corridor or walkway (type *S*) plan had its origin principally in warm or mild climates. This design, particularly in single story schools, to which it is best adapted, could have developed as an economy measure. With classroom exits leading directly to the out-of-doors, there is no reason for fireproof construction as far as occupant safety is concerned, and the utilization of nonfireproof materials could result in lower initial costs. The trend, however, has been toward the permanence and lower maintenance costs of masonry construction. Almost all the older schools — those built 25 or more years ago — in the areas where the *S* type plan developed, were multi-story duplicates of their contemporaries built in cold-weather areas. Neither the architects nor the educators seem to have had any idea of designing with the warmer climatic conditions in mind. While most of the concepts of what constitutes good school architecture are the same, the design required for a school in Michigan is very different from that required for a school in Florida.

When a basic plan, or even a machine, appears to have faults, we may sometime discard the whole thing and make an entirely new start. The single-loaded corridor plan seems almost to have originated in this way. Improved cross ventilation and north exposure of major glass areas, with decreased heat from the sun, was accomplished without much study by adopting the type *S* plan. In order to prevent the structure from becoming too long and completely decentralized, a number of parallel fingers were used, with a court yard between rows of rooms rather than a corridor. If comparable material is used in the construction of the building, the type *S* plan is more costly, and it may be that more attention should be given to the factor of economy, at least until the pressing demand for classroom units is met.

The single-loaded corridor, or type *S* plan, has a number of advantages, including the following:

1. Possibility of bilateral and more uniform lighting.
2. Relatively simple ways of placing the short dimension of the classroom par-

FIGURE 2

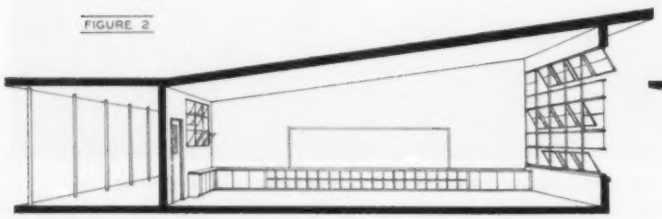
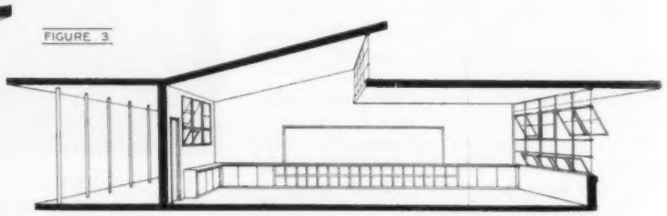


FIGURE 3



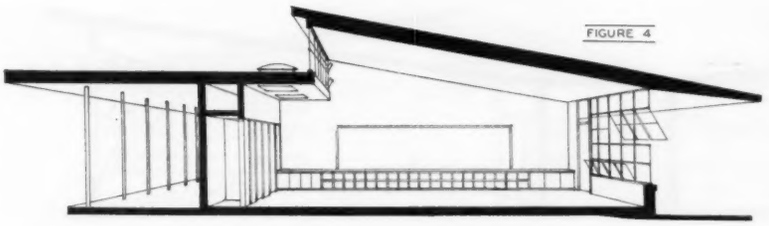


FIGURE 4

allel to the walkway, with increased economy.
3. Improved cross ventilation.
4. Minimum of traffic passing a classroom.
5. Less noise transference between rooms unless the courtyard between wings or fingers is too narrow.
6. Possibility of each room letting in the out-of-doors from two directions rather than one.
7. Safety to occupants from fire hazards at a maximum.

The disadvantages include:

1. Usually higher construction costs.
2. Less economy in the use of land area.
3. Necessity of locating wardrobes or lockers, for security reasons, in classrooms or in separate locker rooms. This advantage is more pronounced in secondary schools or schools operated on a departmentalized basis.
4. Visual distraction between rooms across a courtyard, as well as some noise interference, unless windows on one side are fairly high silled. In this event, cross ventilation will suffer to some extent.
5. Higher heating costs due to greater exposure.
6. Increased horizontal travel distances and exposure to weather unless the walkway is enclosed, thereby cutting off much of the cross ventilation.
7. Less supervision and control.

It should be noted that wherever the element of cost is mentioned in this article, the comparison is of course based upon identical construction characteristics in the alternatives being examined.

Other Plan Developments

As indicated in the opening paragraphs, there are other plan developments beside the single-and double-loaded corridor types. These include the cluster type plan, a late arrival on the school planning horizon, in which classrooms are disposed around a central core, much as the petals of a flower are arranged about its center. There is also what has been referred to as the *warehouse* type plan, in which exterior window walls are absent so far as interior rooms are concerned. Such a building is lighted by skylights of one form or another, except for rooms around the perimeter. There are still other plan arrangements but there have been insufficient completed examples to permit accurate evaluation. The cluster type plans to date have been far beyond the usual school building budget, although there may be no inherent reason why they should not be able to compete costwise with the type *S* plan. The *warehouse* type is probably the most economical of all. However, these two types are still more or less in the experimental stage.

In both the single- and double-loaded corridor plan (types *S* and *D*), several basic classroom floor plan shapes may be used. The more common shape is the rectangular, in which the longer dimension of the room is placed parallel to the corridor or walkway. More recently, classrooms have been built which are essentially square, and also rectangular with the short dimension parallel to the corridor or walkway. These three will be designated as types I, II, and III.

The type I plan, with the long dimension of the classroom rectangle parallel to the corridor, can be lighted by windows on one side only, unless the room is exceptionally wide. In fact, this basic shape is the only one which can employ unilateral daylighting satisfactorily. Either the type II or type III shape must have fenestration or some means of bringing natural light into the deeper areas of the rooms other than windows on one side only. Two rather widely accepted standards for window dimensions and areas are: first, the height of the head of a window should not be less than one half of the room width where unilateral lighting is used; and second, the glass surface should be 20 per cent, or more, of the floor area.

It is obvious that the type I classroom floor plan, applied to either the single- or double-loaded corridor scheme, is the least economical of corridor or walkway lengths and is therefore the most expensive. It must be realized that longer corridors necessitate for greater length of runs for plumbing, heating, and electric pipes, and conduits. Conversely, the type III classroom is the most economical, because of the appreciably shorter corridor lengths and corridor areas. With the type III plan, however, the roof framing members run parallel to the corridor, resulting in somewhat decreased flexibility as to changing the location of dividing walls between rooms, should it ever be desirable to do so. In the type I scheme, these dividing walls can be nonbearing, thereby achieving complete flexibility as to their location.

"Lift-Slab" Construction

A comparatively new construction method for roofs is the "lift-slab" process. In this development the concrete floor slab is constructed in its finished form, except for the application of the finish floor material, such as asphalt tile. The top surface of the slab is then treated so that concrete will not adhere or bond to it and the roof slab is then poured directly upon it. This eliminates the cost of roof slab forms and their supports, as well as the cost of elevating the concrete to pour into them. When the slab has "set" or cured, it is raised by means of lifting devices attached to each steel column and secured to them when elevated to the proper level. In this method, there are no bearing walls but merely steel columns spaced at intervals apart in both directions. This spacing may be up to nearly thirty feet in each direction and almost complete flexibility as to location of interior dividing walls is accomplished. This method is adapted only to flat roof designs and precludes the use of some of the cross sections to be examined herein. This, in turn, requires the use of skylighting for interior portions of the building, remote from the exterior glass wall surfaces.

The various cross-sectional designs which have been developed have originated fundamentally to achieve uniform natural daylight and cross-ventilation. In this process, we have endeavored to make windows serve two functions, the admission of both light and air. It is doubtful that fenestration will ever serve both purposes in an entirely satisfactory manner. Windows with an orientation which is best from a light standpoint, may or may not face in the right direction to utilize prevailing wind currents for ventilation. In the colder parts of the country less attention need be paid to natural air circulation inasmuch as the window vents serve only to admit a sufficient quantity of fresh air with the vitiated air being drawn off by convection or mechanically induced circulation. In the warmer climates, more particularly, the windows are required to provide both functions and it is there that many of the newer designs have originated.

Due to the widely varying paths of the sun, with relatively high elevations in the spring and fall and low elevations in the winter, it is necessary to provide some means of light control. This is true even for windows facing north, wherever sky glare is a factor. Among the means of such control that have been used are overhang-

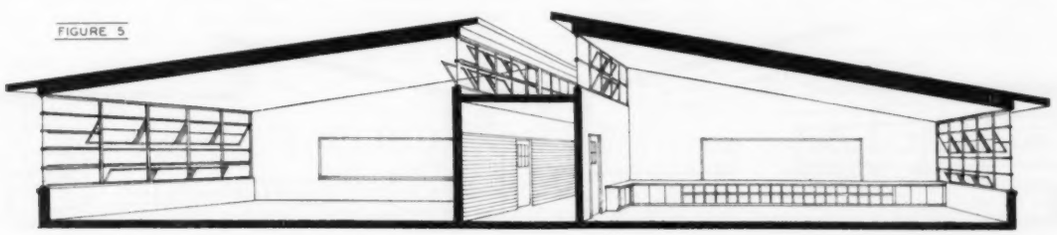


FIGURE 5

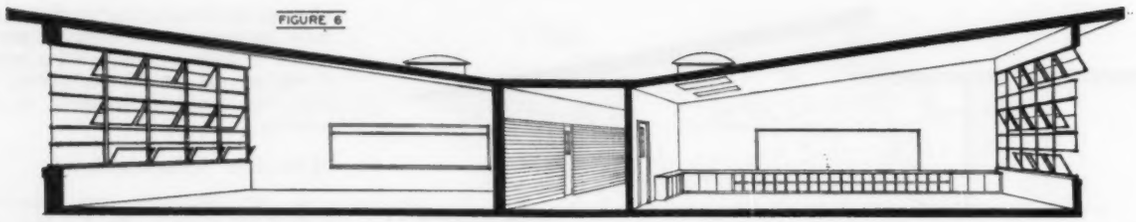


FIGURE 6

ing roof eaves, exterior louvers, interior blinds or shades and various types of directional, heat-absorbing, and glare-reducing glass. In the extreme south, roof overhang alone will not be adequate for windows facing in a southerly direction unless the overhang is rather extreme. Fixed exterior louvers are not satisfactory and adjustable ones are too expensive and too costly to maintain. Interior blinds of the venetian type or shades frequently interfere with window vents but are still the most satisfactory from the standpoint of ready adjustment to varying conditions. Directional, heat-absorbing and glare-reducing glass of many types have been developed and each has its advantages. Frequently combinations of these several control methods are used.

Cross-Sectional Designs

Other than by the use of skylighting, in order to bring natural light into the deeper portions of rooms of the type II and III plans, a number of cross-sectional designs have been developed. Reference to plans which have been publicized in educational and architectural publications will indicate that there are but four basic sections which have gained significant acceptance. These are shown in the accompanying illustrations and each type is shown as applied to both the single and double-loaded corridor.

Figure 1, type *S*, illustrates a type which has been extensively used in the "finger" type plan and is applicable to I, II, and III classroom floor plans. The common orientation places the walkway toward the south, using one or a combination of light controls for the windows above the roof of the walkway. On these clerestory windows, in this and other illustrated cross-sectional types, a "sun-shade" insect screen will prove effective. This screen is designed to cut out direct sun light striking it from above an angle of about 38 degrees and partially cuts down the light at lower angles. The cross section illustrated in Figure 1 has reasonably good natural light distribution, provided the window areas are properly proportioned and cross ventilation is adequate. The latter characteristic can be improved if louvers are placed not too far from the floor level on the walkway side. While such louvers will admit some noise from traffic along the walkway, they are superior to windows at this point since visual distraction would be a factor. This cross section, when applied to either type II or III classroom plans, requires somewhat higher exterior walls than is desirable if a barnlike interior appearance is to be avoided. It is doubtlessly the more economical in first cost due to the simplicity of the roof framing.

Figure 2, type *S*, has some advantages in that the larger glass areas can be faced toward the north and those toward the south are shaded by the walkway roof. In many areas, skyglare is quite as much a factor as direct sunlight and, to that extent, this design requires adequate light control for at least the upper part of the high windows facing even toward the north. Roof overhang alone will not prove adequate and must be supplemented by other means, such as those mentioned heretofore. The major disadvantage of this design lies in the location of windows opening directly on the walkway, with its visual and audial distraction. In the instance, however, of self-contained primary classrooms, each with its own toilet facilities, this undesirable factor is at a minimum, due to the small amount of necessary traffic on the walkway. As indicated by the footnote to the illustration, the roof over the classroom may be flat, in which event the arrangement becomes basically the same as that of Figure 1. This is also an inherently economical design but does not lend itself to a pleasing interior appearance.

North Lighting Featured

The type *S* cross section shown in Figure 3 accomplishes the desirable possibility of north lighting and is therefore superior to the designs shown in Figures 1 and 2 from the standpoint of uniformity of natural light intensity. The location of clerestory fenestration also improves the uniformity of light particularly when used with the type II or III classroom shapes. Either windows or louvers can be located along the walkway wall of the classroom for additional lighting or ventilation purposes. This sectional design, with an "egg-crate" or diffusing ceiling structure under the clerestory, can provide the advantage of a lower apparent ceiling height and a more homelike interior atmosphere. The roof framing is somewhat more complicated and thus more costly than that shown by either Figures 1 or 2.

Figure 4, type *S*, is illustrated only because it is a logical companion to its double-loaded corridor counterpart. It has no advantages over that shown in Figure 1, except for improved natural light distribution, especially when used with type III classroom shapes. Its use will require skydomes for the lower ceilinged area adjacent to the walkway, or the use of fenestration in the walkway wall. Cross ventilation may require louvers in the walkway wall as well.

Of these four cross-sectional types, as applied to the single-loaded walkway, that shown in Figure 3 has several advantages, particularly when applied to type III classrooms in which the depth from the outside window wall to the walkway wall is rather great. The light distribution characteristics are, or should be with proper proportioning, very good indeed; although they have been gained at some expense to natural, cross ventilation. The somewhat increased roof framing costs should be more than offset by the economies inherent with the type III classroom plan, all of which have been enumerated above.

Figure 5 illustrates the double-loaded corridor application of the section used in Figure 1. This is definitely an undesirable type. With a reasonably normal corridor width, the opposing clerestories are so close together that cross ventilation is hampered. In nothern lattitudes, the comparatively narrow trough down the roof center line will cause difficulty in seasons of heavy snowfall and may even be subject to trouble during very heavy rains, unless care is taken to use amply large roof drains. Sound interference will also be a problem, by the transmission of noise through the clerestory vents from one room to another. Unfortunately, possibly due to the economy and simplicity of this design, it has been used rather widely.

The type shown in Figure 6 is a companion to that in Figure 2. This section cannot be used for either type II or III classroom floor plans unless skylighting, by domes or otherwise, is used to admit light to the deeper portions of the rooms. This type, with a flat roof design and with the use of skylighting is ideal for use with the so-called "lift-slab" method of construction. Of recent date, a number of schools employing that construction technique have been built in Rhode Island and at costs very considerably below more con-

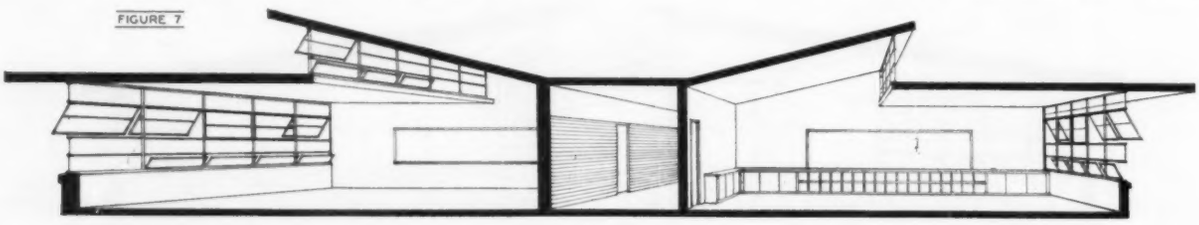
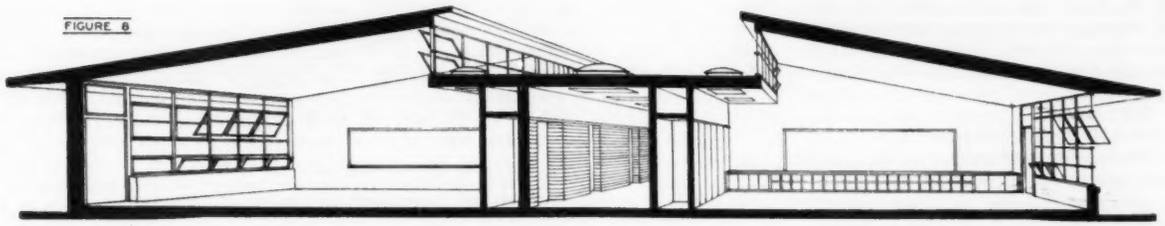


FIGURE 7

FIGURE 8



ventional designs and construction methods. With proper spacing and locating of the skylight surfaces, the interior light distribution is excellent. On the other hand, in areas where cross ventilation is a factor, this type will have to depend upon some degree of mechanical ventilation. Some experimentation has been carried out with corridors shaped on the venturi tube principal and the results are said to be quite promising. This refinement might very well eliminate some of the disadvantages of the section from the cross-ventilation standpoint.

Uni-Lateral Lighting

Figure 7 shows the double-loaded corridor version of the scheme in Figure 3 and is, in effect, unilaterally lighted. Regardless of the orientation, in terms of points of the compass, all of the glass surfaces in a given room face in the same direction. This prevents direct sunlight from streaming in from one side and a less intense light from the other. In turn better uniformity of natural light is achieved under all conditions. Some cross ventilation is had by reason of convection currents of warmer air escaping from the rooms through the clerestories. This section has been quite extensively used in northern parts of the country, with good economy, and usually with east-west orientation for the classroom windows.

Figure 8 has been developed in but a few instances. This design eliminates the disadvantages of that shown in Figure 5 and at the same time retains the cost advantages. The clerestory windows can be kept sufficiently far apart, with either type II or III classrooms, so that ventilation is not hampered and also so that there should be no difficulty from sound transference from one room to another. Similarly, this design, with the greater width between clerestories, can be used in northern latitudes without the snow troubles incident to Figure 5. The natural daylighting of the portion of the classroom with lower ceiling height will not be adequate unless skylighting of this area is resorted to. Skylighting of the corridor may also be desirable since borrowed light through classroom doors ordinarily will not be sufficient. The natural cross ventilation will be good for that portion of the rooms between the clerestory and the exterior window wall. The somewhat pocketed area under the low roof section will require a moderate amount of mechanical ventilation. Depending upon the study given to the roof framing design, this is an economical section. The lower ceiling height effect will produce rooms of pleasing proportions.

The four basic cross sections, applied to both the single and double-loaded corridors, and shown in Figures 1 through 8, are not inclusive of all that have been developed and used. They do, however, cover a majority of the schools erected within the past few years and which have been publicized in school and architectural periodicals. Indeed, it might be possible to combine two types of cross sections on opposite sides of the corridor in a double-loaded design. One such feasible combination would be the use of the Figure 1 section on one side and the Figure 3 section on the other. This scheme might well be applied in warmer climates, placing the Figure 1 section toward the South, with ample roof overhang to eliminate direct sunlight. This gives all other fenestration a northern exposure. Good cross ventilation would be achieved for the south rooms, where most needed, with less advantageous natural ventilation only in those toward the north. This scheme has the further advantage of eliminating any possibility of sound transference from room to room through the clerestories.

As pointed out already, there is probably no plan arrangement nor cross-sectional design that will be found ideal in every respect. Arriving at a reasonably good solution to natural lighting will most probably be achieved at the expense of some other factor. A design suited to one part of the country and to one set of climatic conditions will not be equally desirable elsewhere. The proper approach, therefore, is that of solving the more important problems with as little compromise as possible with other factors.

Unleashed Savings in School Construction

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If one were to list factors of potential economy in school construction in the order of their relative importance, the major ones would appear as follows:

Analysis of educational needs
Method of financing
Design efficiency
Methods and materials of construction
Extent of utilization of facilities
Management of bidding
Timing and nature of equipment planning

Analysis of Educational Needs

Table I, at right, shows a comparison of the number of square feet assigned to various functions in three recently planned, junior-senior high schools. Although each of these schools was planned to house 500 pupils in a full secondary school program, the definition of what that program should contain varied tremendously among the communities. It is clear that there is no such thing as a standard high school for a given number of pupils. In fact, the first step in the economical planning of a school is to write in great detail the edu-

Table I. Comparison of Square Feet Assigned to Areas of Three 500-Pupil Junior-Senior High Schools

Unit	*Total Area Square Feet* I	*Total Area Square Feet* II	*Total Area Square Feet* III
Language Arts	5,700	5,150	
Social Studies	4,800	4,500	13,000
Mathematics	3,200	2,750	
Science	4,350	3,800	1,050
Business Education	900	1,900	2,550
Industrial Arts	2,000	5,600	2,900
Home Economics	1,000	2,400	1,200
Art	1,400	1,200	1,200
Music	2,346	2,100	....
Physical Education	9,600	11,132	8,700
Auditorium	5,400	9,000	....
Library	2,200	1,900	1,800
Cafeteria	3,600	3,800	3,800
Staff and Student Services	3,350	3,150	1,960
Total Educational Area	49,846	58,382	38,160
Gross Area (140% of Educational Area)	69,784	81,735	54,324
Difference in area between I and II		11,951 sq. ft.	
Cost of difference at $15 per sq. ft.		$179,265	
Percentage of difference		15%	
Difference in area between II and III		27,411 sq. ft.	
Cost of difference at $15 per sq. ft.		$424,665	
Percentage of difference		33.5%	
Difference in area between I and III		15,460 sq. ft.	
Cost of difference at $15 per sq. ft.		$231,900	
Percentage of difference		22%	

cational program and a description of the facilities necessary to meet the needs of that program.

Watch for these elements in the educational specifications:

- Differences in size of classrooms
- Size of auditorium and stage
- Seating capacity of gymnasium
- Multiple use of cafeteria
- Justification for corridor dimensions
- Number of services in cafeteria
- Size of library
- Need for study halls
- Teaching techniques — recitation versus activity programs
- Extent of vocational or industrial arts programs
- Differences in curriculum requirements

Educational programs, especially in the secondary schools, are undergoing extensive changes through the development of educational practices. One of the professional leaders, in a theoretical approach to planning of secondary schools, made the following statement: "The question of space for music rooms, auditoriums, gymnasiums, swimming pools, rifle ranges, and bowling alleys immediately comes to mind. The reason for the omission of these is that I cannot see any justification for these activities that is related to the essential program of the secondary school. A thoroughly desirable program of secondary and adult education is possible without them."[1]

Although shocking to many people and not in accord with the thinking of a large segment of the educational profession, there is much merit in the thought that we may have been leaning over backward with special rooms, large auditoriums, gymnasiums to seat thousands of spectators, and other spaces more directly associated with popular community activities than with the direct function of the secondary school. Divergent thinking indicates that the real need is for complete school and community analysis of educational needs prior to planning.

TABLE II

COSTS ON 32 NEW YORK STATE SCHOOL BUILDINGS
AS REPORTED BY NEW YORK STATE EDUCATION DEPARTMENT, SEPTEMBER 18, 1952,
ON 22 NEW YORK STATE SCHOOL BUILDINGS REPORTED JUNE 15, 1953
AND ON 31 NEW YORK STATE SCHOOL BUILDINGS REPORTED OCTOBER 14, 1953.

COMPARISON BETWEEN CUBIC FOOT AND SQUARE FOOT COSTS AS REPORTED

Figures standing free represent the 1952 report.
Figures in parentheses (1) represent the June 15, 1953 report.
Figures underlined 1 represent the October 14, 1953 report.

COST PER CUBIC FOOT (CENTS)	COST PER SQUARE FOOT*								
	$13.10 to 14.00	$14.01 to 15.00	$15.01 to 16.00	$16.01 to 17.00	$17.01 to 18.00	$18.01 to 19.00	$19.01 to 20.00	$20.01 to 21.00	$21.01 to 22.00
81-85	(1)	2 1	1						
86-90			1						
91-95		3		(1) 1					
96-100	(1)	2	2 (1) 1	1 (1) 1					
101-105	1	2 2	1 (1)	1 1	1				
106-110	1	(1) 1	(1) 2	1 (4)	(3)				
111-115		(1) 1	(1) 2	3 1	3 1		1		
116-120			1	(1) 2	1	(1)			
121-125				1	1				
126-130				(1)	4 2		1		
131-135					(1)	(1)	2		1
136-140							1		
141-145						1			
146-150									
151-155									1
156-160								1	1
Totals	4	16	15	21	17	3	5	1	3

Median for all groups in range: $16.01 to 17.00
Median of group reported 9/52: 17.01 to 18.00 per sq. ft.
Median " " " 6/53: 16.01 to 17.00 " " "
Median " " " 10/53: 15.01 to 16.00 " " "
Total number of cases: 85

* It will be noted that cost per cubic foot is not much better, if as good.

Method of Financing

Most school buildings in the United States are constructed from money raised by the sale of bonds. These bonds are paid off in annual installments over periods of from 5 to 30 years. Interest on bonds during the past few years has varied from slightly more than 1 per cent to over 3 per cent. The difference in interest rate of 1 per cent is equivalent to a saving of 15½ per cent in the cost of construction of a school building amortized over a 30-year period. The differences in interest rate are accountable for largely by three major factors: (1) the character of the bond; (2) the credit and faith of the community or organization offering the bonds; (3) the time of issuance.

The character of bonds and the procedures by which they are sold vary greatly from state to state. In the state of Pennsylvania, bonds may be issued by local or state school building authorities. Authority bonds usually carry a higher interest rate than school district bonds because they are relatively new types of bonds on the market. In New York State bonds are issued by local school districts. The interest rates on these bonds vary considerably depending on the credit of the district. The ability of a community to bond itself by such bonds is generally limited by law to a certain percentage of the assessed or "true" valuation of property within the district. This rate limitation frequently prevents communities from developing essential school facilities and is one of the major reasons why the Pennsylvania legislature made possible the establishing of school building authorities. Limitation of indebtedness has no relationship to the valuation of property. In several states, illustrated by Maryland, California, North Carolina, and South Carolina, school construction bonds have been issued by the states, and the proceeds distributed to school districts. These bonds may be issued with the full faith and credit of the state, or they may be backed by special revenues. Because of the state backing of these issues, they carry the lowest interest rate of any of the school bonds.

The New York *Times* of November 22, 1953, reports the following recent major issues:

Borrowing costs incurred and current long-term investment yields offered by recent major issues of full-faith-and-credit state school bonds are as follows:

State	*Interest Cost Last Borrowing*	*Maturities*	*Current Yield (Long-Term)*
California	3.011	1955–79	2.6
South Carolina	2.04	1954–73	2.2
Maryland	1.698	1956–68	1.8

Borrowing costs and current long-term yields on recent issues of state school bonds backed only by revenues are as follows:

State	*Interest Cost Last Borrowing*	*Maturities*	*Current Yield (Long-Term)*
Washington	2.935	1955–63	2.4
Georgia	3.743	1954–71	3.27
Pennsylvania	3*	1989–91	...

*Represents $16,659,000 of 3 per cent bonds sold in October, 1952, to the State Retirement Fund.

There appears to be the possibility of saving from 1 to 2 per cent interest on school bonds by utilizing the full taxing power of the state and avoiding the use of school building authorities. This 1 to 2 per cent saving would represent from 15 to 30 per cent equivalent saving in the cost of construction.

Public education has been recognized legally as a state function. Responsibility for establishing public schools remains at the state, rather than at the local district, level; and as such, it seems reasonable that the full faith and credit of the state should be placed behind public school facilities. This is not true of many other functions for which localities issue bonds. The practice of state-wide issues has proved to be successful; and it appears that it can be carried out without encroaching upon the right of communities to design school buildings in accordance with their individually felt needs.

The factor of timing is vitally important in the determination of interest rate. Short-term issues are considerably less expensive

[1]G. Robert Koopman, "A *New* Theoretical Approach to Secondary School Planning," *The Nation's Schools*, Dec., 1953.

than long-term issues. Interest rates on five-year bonds may be from one-half to one per cent less than interest rates on 30-year bonds. Also, the interest rate on school bonds has risen considerably during the past year because of various elements affecting the total bond market.

The management of financing, therefore, is extremely important and is frequently much easier to control on a state-wide basis, than on a local district basis where the option of issuing bonds is generally limited to a period of a few months and where the tax rate is seriously affected by the term of the issue. Here, then, in the financing of schools lies a potential of significant savings which certainly should be given maximum consideration at this time of largest investments in this field.

Design Efficiency

A comparison of two buildings recently planned reveals that in one building the net area available for education was 54.6 per cent out of a gross area of 65,780. In a comparable structure, the equivalent educational area available was 76 per cent out of a gross area of 67,455 square feet. Detailed analysis of the plans made quite evident the places where efficiency was the keynote. In these cases, if the less efficient school had been planned at the higher efficiency, a saving of over 18,500 square feet would have resulted. At $15 a square foot this would equal $277,500, a saving of 28 per cent in the cost of the building. Here, too, is a place for major economy.

Design efficiency could best be compared if a standard definition of the usable educational area of a building were to be developed. As a beginning in this direction, it is suggested that educational area be defined as the net floor area available for use by a teacher working with one or more students. This definition has its disadvantages, however. For example, it places a premium upon storage spaces for instruction materials and raises marginal questions, such as what to do with the general office. Out of this definition should grow a standard list of spaces which can be used by everyone alike. A concomitant, of course, would be that the standard means of determining the gross square foot area should likewise be defined.

Methods and Materials of Construction

It is not the purpose of this article to itemize the many economies which can be achieved through wise selection of methods and materials of construction, but rather to indicate simply that this is one of the areas in which major economies should be sought and to place this factor in its proper perspective, since all too frequently laymen may recognize this as of single importance and rely upon it too strongly in the selection of architects. Exaggerated attention is given to the savings in the cost of construction per square foot to the exclusion of other factors in economy.

It is almost redundant to point out that the square-foot cost of school buildings today may range from approximately $8 to $25, depending on the section of the country in which they are planned and on the requirements of climate and building codes. Differentials, usually the result of regional variations in labor and material costs, can hardly be controlled by planners. Yet all too frequently, comparisons are made which can prove exceedingly detrimental to the school program (and unfair to the architect?).

Table II, on opposite page, shows the range in costs on 32 New York State school buildings, as reported by the New York State Education Department for three different periods.

Extent of Utilization of Facilities

Utilization studies have indicated the low percentage of use of certain types of rooms in school buildings, both in terms of the pupil-load versus capacity and time utilization.

A large auditorium frequently has much less utilization than a small auditorium. A separate agricultural shop for one class of boys may have less than 50 per cent utilization during the course of the school day and might be combined with the power mechanics shop. In schools where there are some small classes in advanced languages, mathematics, and the like, it is difficult to justify utilization of a room which can accommodate two or three times the class size.

In utilization studies of high schools, it has been found that, on the average, utilization of academic classrooms is about 80 per cent of the number of periods in which they are available for use. It has also been found that use of the total pupil capacity of these rooms usually ranges between 60 and 70 per cent. Pupil-station utilization of study halls extends over a wide range. Utilization of science lecture rooms — a facility which is rapidly disappearing from new schools — has ranged between 40 and 60 per cent. Music rooms are notably low in utilization; not infrequently, it is only 15 per cent of capacity. Range in utilization of buildings as a whole in terms of their room use per period may range from 67 per cent to 79 per cent; and in terms of their pupil-station capacity, the range would be from 29 per cent to 45 per cent.

In the past there have been many emergency techniques resorted to in order that building space might be utilized more extensively. These included establishment of the old platoon system in the elementary school, half-sessions in elementary and secondary schools, and reduction in the number of minutes per period with an increase in the number of periods in the day in high schools. Each of these systems will make it possible to bring more children into the building, but there can be no doubt that they also have the concomitant aspect of reducing the educational offerings and making less effective the educational program as far as each child is concerned. Educationally, the tendency is to lengthen the period in order that more may be accomplished and to reduce the breaking up of the school day into small compartments.

Recently, there have been introduced some other suggestions for making greater use of the school building. Included among them are the extension of the school day where this is possible — some communities allowing young people to work after school would not find it so — and the lengthening of the school year to eleven out of twelve months instead of the present eight or nine months. In the latter case, plans have been developed which indicate that by staggering school sessions throughout the year, it would be possible to save approximately 30 per cent of the library and classroom area within a large school. Obviously, there are many difficulties in such a plan, and it undoubtedly has very limited appeal. On the other hand, it may enhance the educational program at very little additional expense by making possible extended programs for enrichment of the educational offerings of its boys and girls. Such enriched offerings would, of course, require adjustment in staff time, since most teachers today are carrying a load that is extremely heavy. Probably by careful planning it would be possible to save from 5 to 15 per cent through maximum utilization of all the facilities and capacities of the building.

Management of Bidding

Two major points are of importance under this category:

A. Competitive bidding benefits by a large number of bidders. Every encouragement should be given to contractors to submit bids; and, certainly, this practice is being followed by a large number of architects today. In a study of school building costs made some years ago, it was brought out in numerous instances that the larger the number of bidders, the lower the cost per square foot. This is a very difficult element to evaluate, however, in view of related problems.

B. The second element of importance in bidding appears to be the timing of bids in relation to the season of the year and to the amount of other contracted work in the area. It is felt by some that early spring or late winter bidding has a potential saving of 5 per cent, that June bidding is generally expensive, and that in some areas it may taper off again in the fall. During the past four years the average square-foot cost for school buildings in the city of San Francisco bid in March was $17.98; in June, $21.17; and in October, $18.82.

Planning for Equipment

The success or failure of phases of the school program may be in considerable measure dependent upon the character of the equipment used. It has been common practice to determine room sizes rather arbitrarily in terms of total amount of area that is allotted to a building. After these sizes have been incorporated in a floor plan, and even after the building construction is under way, then equipment is selected. This is, clearly, an example of "putting the cart before the horse."

The timing in school building planning should be with first emphasis upon curriculum; second, upon teaching methods; third, upon selection of equipment; and fourth, upon determination of room sizes. It would appear that such a process could be expected to produce the most acceptable results with the least possible waste. The role that equipment and furniture should play in the determination of school plant facilities has been by-passed too often and too extensively. Early decisions regarding the types and character of equipment are imperative, can produce some savings in total cost of a building, and may affect final plans of a building. Here, too, is a factor clearly affecting the unit cost of construction in the degree to which equipment is included under the general contract or purchased separately.

(Concluded on page 114)

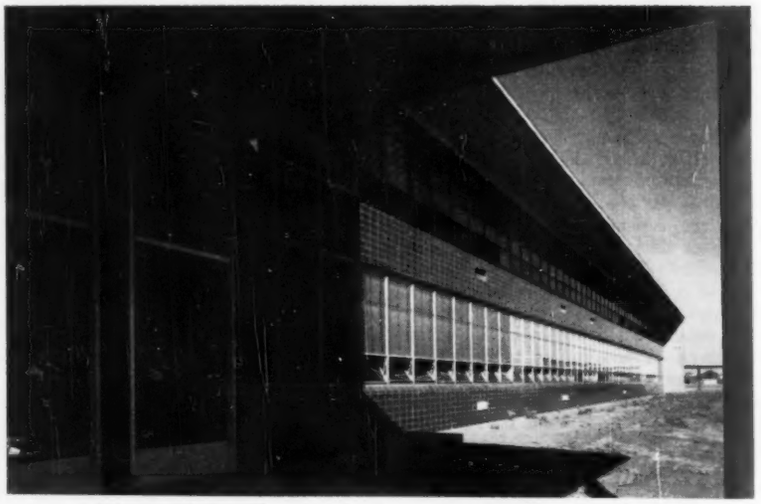
U. S. Grant Junior High School, Oklahoma City, Oklahoma — Wright & Selby, Architects & Engineers, Oklahoma City.

The U. S. Grant Junior High School —

Oklahoma City Builds for Future

N. L. GEORGE, PH.D.

Assistant Superintendent in Charge of Business
Oklahoma City, Okla.

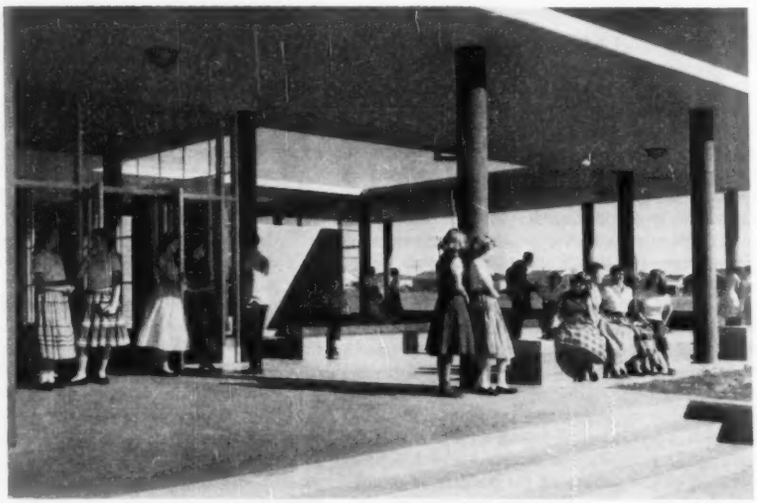


The window and door glass is encased in aluminum frames; the building is constructed of salmon colored brick and green glazed structural tile.

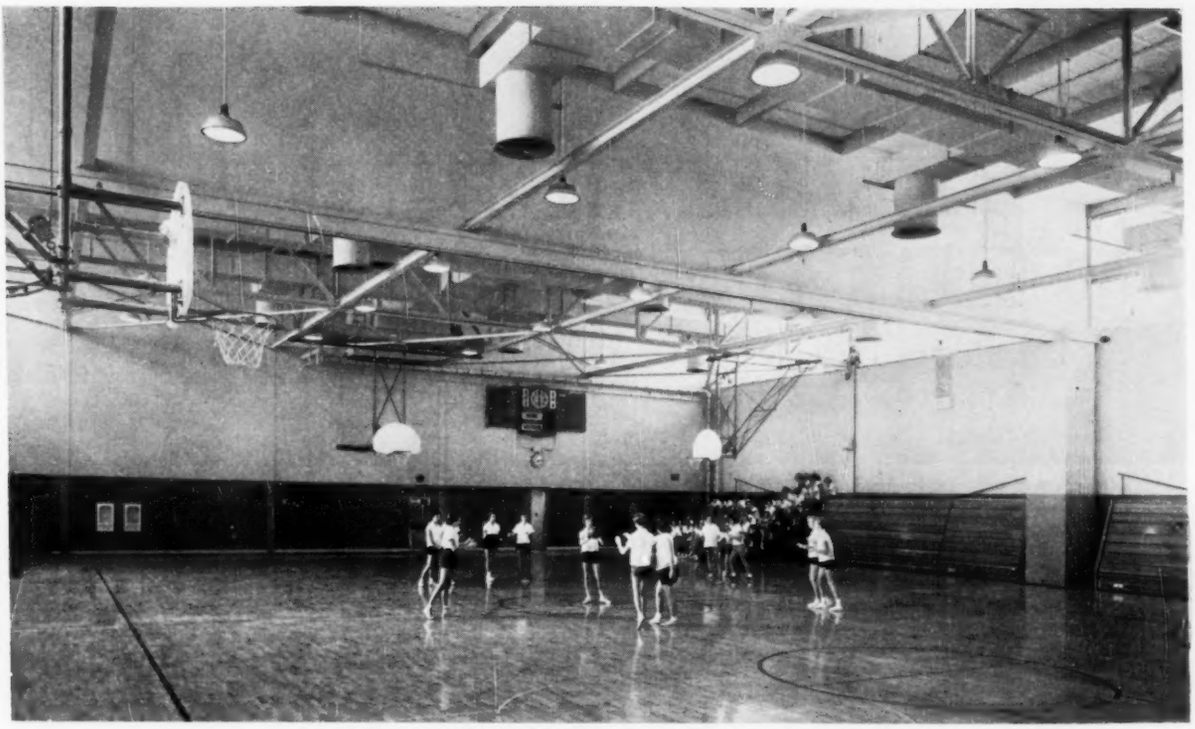
Early in 1951, the pupil pin map of the Oklahoma City School District indicated in its over-all plan the need for a new junior high school in the southwest part of the city. Two years previous, the board had purchased by condemnation a 21-acre tract of land for $32,300.

Architects Wright and Selby were employed to draw plans and specifications for the junior high school to house an ultimate of 1200 pupils. These architects were assisted by Dr. Frank W. Hart, school building consultant of El Cerrito, Calif., and the local school administration. Education specifications were analyzed and approved by Dr. J. Chester Swanson, superintendent of schools. Financial limitations restricted the board of education to construct space for 630 students in the first unit. The second unit is already needed for the expanding pupil load in this area and will be erected as soon as capital outlay money is available.

The splendid and generous site has areas for adequate playgrounds and landscaping. On the site parking for students, employees, and transients is already developed. A yard toolroom is provided as a part of the main building. Sidewalks and drives have been laid according to accepted safety standards. Careful subsoil analyses were



The unusual main entrance consists of an open court with brick seats and a central flower garden.



The large double gymnasium includes folding bleachers, complete locker facilities, and a separate entrance.

made at 17 points on the site for the establishing of proper foundations.

The beautiful most fire resistant building is constructed of salmon colored brick and green glazed structural tile. The continuous metal framed windows allow ample fenestration. The major entrance doors are aluminum and equipped with tempered glass. The attractive main entrance is graced by a flagpole and developed around an open court which is to be used as a flower garden.

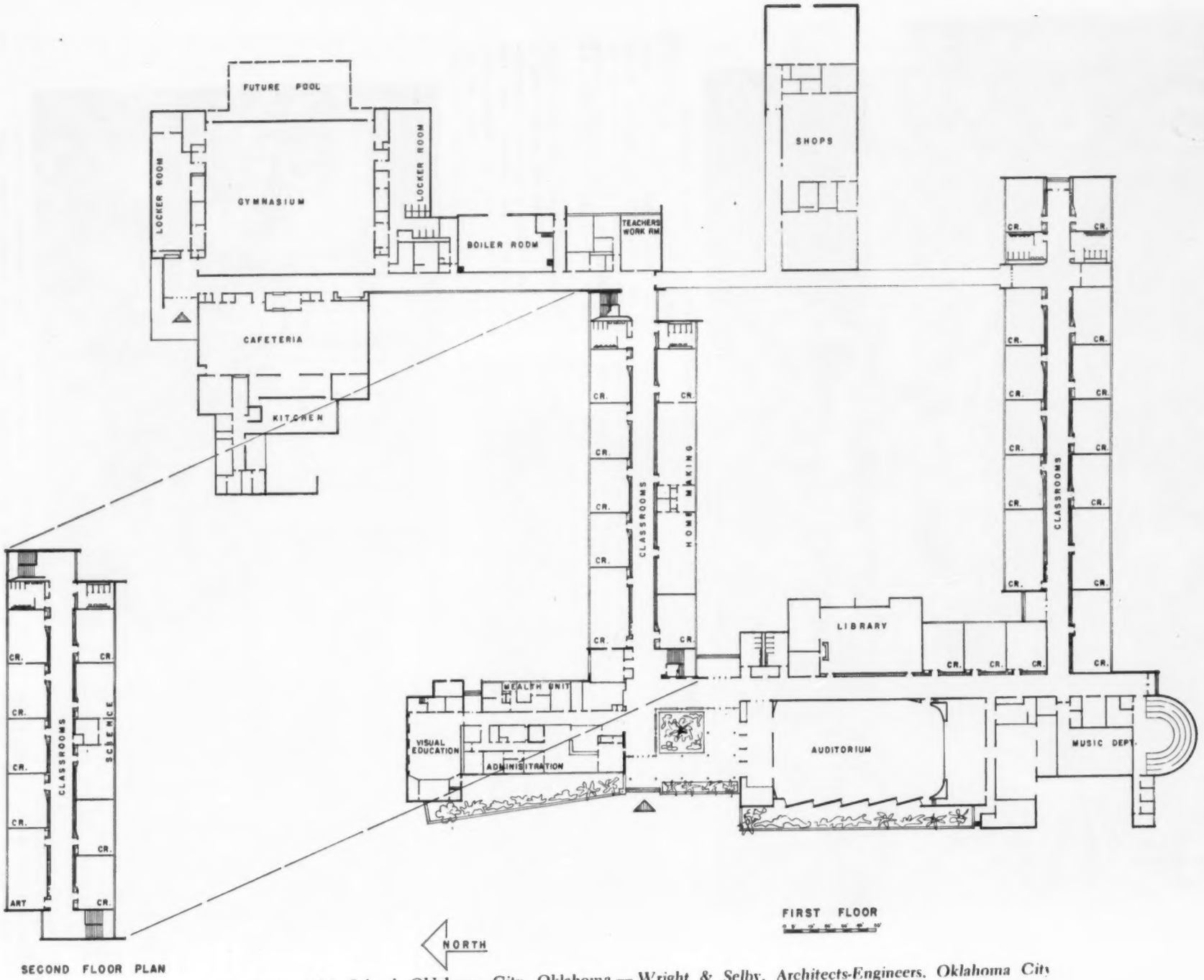
The open vestibule has seats around the square and round columns which gives a pleasing and inviting appearance. Ample expansion joints in the building provide factors which prohibit maintenance problems. All instructional areas, corridors, and large assembly areas are acoustically treated.

The corridors have terrazzo coved-base floors. In some areas the floor is ramped in order to adapt the building on the site contours and to save construction costs. The walls are green structural tile to the heights of the lockers. There is clear glass above the lockers to the ceiling in the classrooms. Other wall areas are plaster and are attractively painted. Shapely rounded corners add elegance to the corridors. Rolling grills are provided in the halls for traffic control when only parts of the building are used. The green metal lockers, size 15 by 15 by 60 inches, match the green tile. Exhibit and display cases, mural boards, bulletin boards, and beautiful aluminum wastepaper and fire extinguisher containers add beauty to the corridors. The stair handrails are extruded aluminum with ends attached to balustrades.

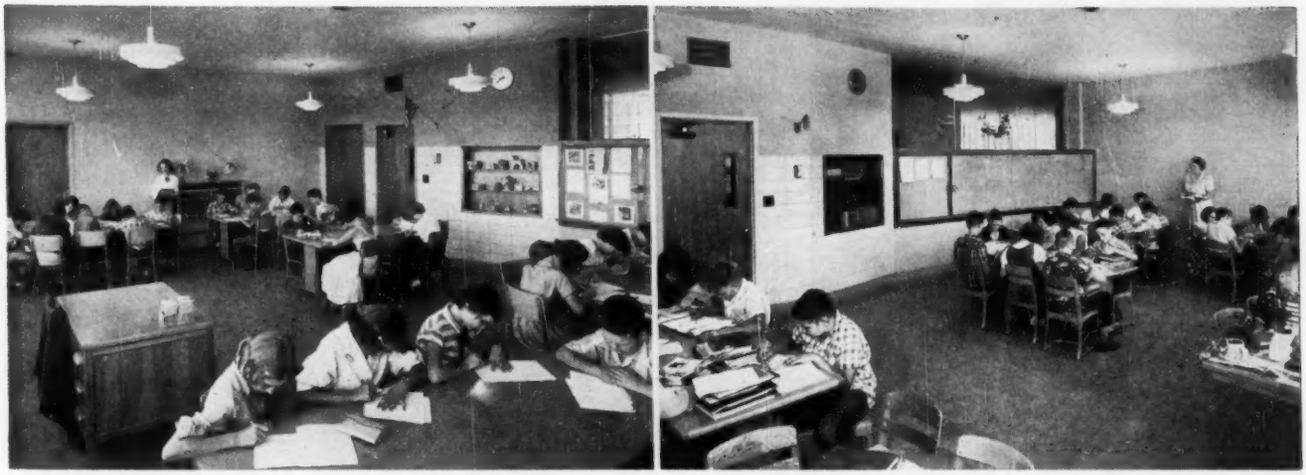
Administrative Areas. The administrative unit consists of a partially glass enclosed attractive general office with an efficient counter. Other areas are a principal's office with clothes closet, a toilet, and escape door, offices for the secretaries, assistant principal, boys' and girls' counselors, record file room, record vault, supply and mimeograph room, and toilets for the staff and teachers. A faculty mailbox is located in the general office. Opposite the general office are areas for the state textbook depository, an office for the head building custodian, the student organizations office, and a health suite consisting of a waiting room, room for the nurse, examination rooms, toilets, and two-cot rooms for the temporarily incapacitated. Booths for pay telephones are adjacent to the administrative area. The teaching planning room is located near lounging rooms for the teachers.

Instructional Areas. The ultimate plan calls for 22 academic classrooms varied in size; one biology room with demonstration, laboratory, and storeroom areas; two general science rooms with demonstration, laboratory, and storeroom areas; one art room with north fenestration; one type-

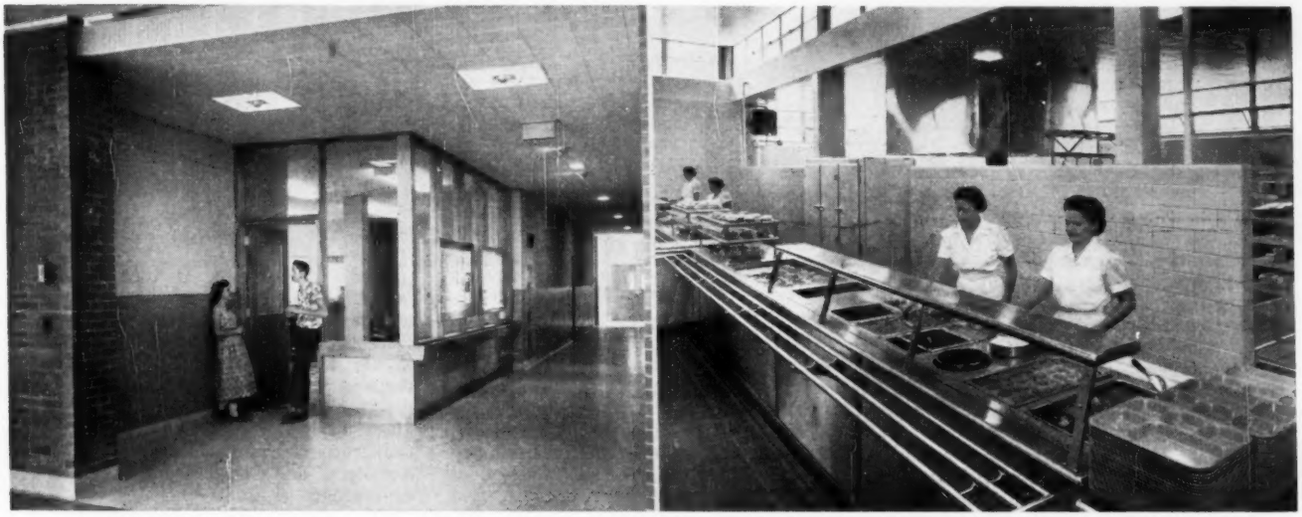
Features found in all classrooms are blond furniture, chalkboard with map rail, pin board, book shelves, marble window sills, and asphalt tile floors.



U. S. Grant Junior High School, Oklahoma City, Oklahoma — Wright & Selby, Architects-Engineers, Oklahoma City



Two more views of a typical classroom; note the clear glass wall area overlooking the corridor.



Left: *Corridor floors are terrazzo; walls are green structural tile to the heights of the lockers, plaster or glass above.*
Right: *Stainless steel equipment, tile walls, and terrazzo and quarry tile floors create an easy-to-operate cafeteria.*

writer room; two home-training rooms with fitting rooms, storage, laundry room, and closets. The kitchen area has six unit kitchens with metal cabinets.

The music department area contains one large room for band and orchestra, another for choral work, one small library and workroom, six practice rooms, one classroom for the theory and appreciation of music, and storage for instruments and uniforms. This area is planned to the rear of the auditorium.

The shop unit includes areas for graphic arts, general shop activities, and woodworking. This area also has a classroom, toilets, storage space, finishing room, darkroom, and space for lumber storage. Large objects may be brought into the shop area through a large door. Other shop areas may be added.

The library has space for 120 students in a reading room, a librarian's workroom, three small conference rooms, a browsing center, and a stockroom.

The little theater will seat 150 students. It is equipped with a stage and platform, storage facilities, a projection room, and a sound recording room.

The gymnasium is equipped with an electric folding door which divides the court area into two divisions for boys and girls. It is equipped with foldable gymnasium seating facilities to seat 600 people. The floor of the gymnasium is hard maple. The walls are treated brick to the top of the door frames, the remainder of the walls are painted shale block, and the ceiling is acoustically treated. Other features of the gymnasium are modern basketball scoreboard, six backstops for basketball, cuspidors and drinking fountains located on both end walls, and large adjacent storage spaces. The separate shower rooms for boys and girls contain offices for the directors, toilets, equipment storeroom, and first-aid areas. In the shower rooms proper are locker facilities in units of three — one single tier is 12 by 12 by 60 in., and two adjacent units contain six locker openings 9 by 12 by 60 in.

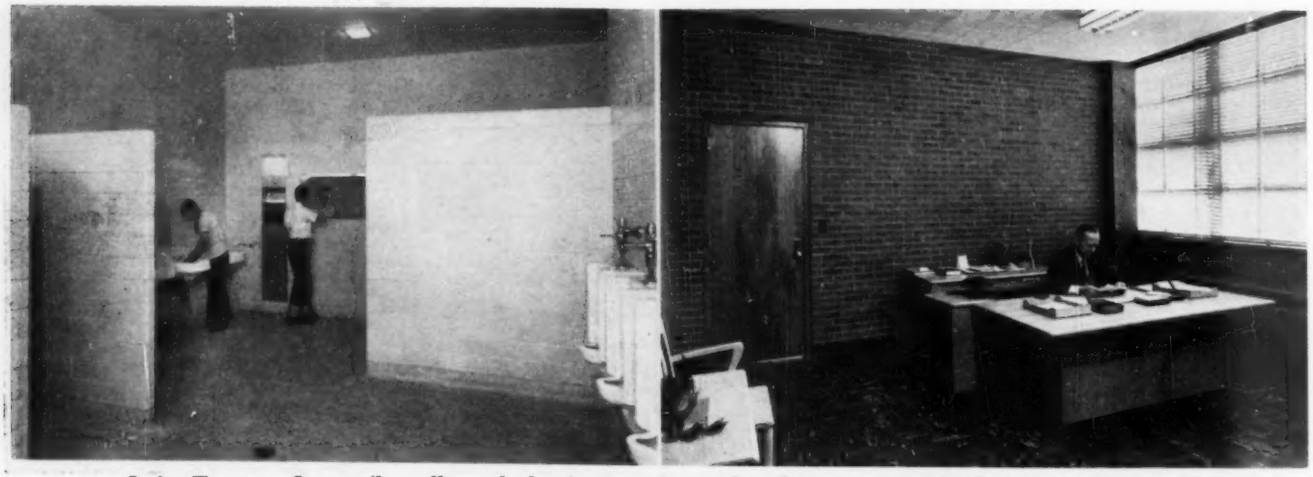
The shower rooms are equipped with a liquid soap dispenser system. The floors of the shower rooms are terrazzo with coved bases. The entire walls are glazed structural tile.

The gymnasium and cafeteria have a joint entrance, and the area may be cut off from the rest of the building by the use of a rolling grill. In this cutoff space are available telephones and toilets for the public. The swimming pool will be constructed adjacent to the gymnasium when funds are available.

The auditorium is planned to seat 600 people. The area contains an attractive lobby, the auditorium proper, the stage with dressing rooms, property rooms, and a stage craftroom.

Features of the three classroom areas are marble window sills, flag holders, teachers' closets, in-wall filing cases, ample chalk board with map rail, pin board, and bookshelves. Attractive "C" grade asphalt tile floor is installed in all classrooms. The regular classrooms have a ceiling height of ten feet.

Other Building Areas. The cafeteria is planned to seat 400 students. It has a teachers' dining room with a separate serving unit to accommodate 40 teachers. Designated areas are provided for the kitchen with serving counters, storerooms, dietitian's office, dishwashing room, helpers' locker, and toilet rooms.



Left: *Terrazzo floors, tile walls, and aluminum and porcelain fixtures are repeated in the toilet rooms.*
Right: *The spacious principal's office combines simplicity with dignity.*

In other kitchen areas are drinking fountains, snack bar, walk-in refrigerator, compressor room, dry storage, can wash, and garbage disposal areas. Hand washing facilities are located near the entrance to the cafeteria. The dining room may be divided into three areas by plastic folding partitions. This provision makes for possibilities of multi-service. The floors in the social area are terrazzo while the floors in the kitchen are quarry tile. The walls of the kitchen area are structural tile from the floor to the ceiling.

The kitchen equipment consists of a proper sized grease trap, two seven-unit hot food containers — gas operated, two electrically operate refrigerated cold pans, display counters, iced drink pan, portable cashier's table, chilled water stations, tray carts, sinks, salad table, maple top worktable, cooling racks, reach-in refrigerator, mixer table, bake and roast oven, baker's table, steam jacket table, solid top range, open top range, steamer, potato peeler, cart, 30-quart mixer, glass machine, dish table, pre-rinse sink, soiled dish table, clean dish table, and dishwashing machine. The metal in most of the equipment is stainless steel.

The ample sized boiler room is adequate for the ultimate sized plant. It has areas for the engineer's workroom, transformer room, and incinerator. The stack for the heating plant has spark arrestors and lightning rod protection. A large overhead door provides space to facilitate further maintenance and possible expansion of services. The central facilities for heating and ventilation are located here. The boilers are low pressure steam to heat all the various sections of the building and also provides domestic hot water. The administrative area of the building is steam heated by means of fin coils with cabinets. The classrooms are heated by hot-water finned-coiled radiators with cabinets and unit ventilators. The steam is converted for this hot water system. The corridors are steam heated. The gymnasium is ventilated by a forced warm air system, while the shops have cabinet type steam unit heaters. The system is regulated by an automatic temperature control system. Positive ventilation and provisions for chilled water service the entire building.

The toilet rooms are shielded from the outside by green colored obscure glass. Floors in the other rooms are terrazzo with proper drains. The walls are glazed tile and shale block. The glazed tile toilet partitions are equipped with metal doors. Mirrors and aluminum paper chutes and containers are installed in each toilet.

Besides the office in the administrative unit for the head custodian, there are custodial quarters throughout the building equipped with mop and broom holders, slop sink, and shelving for supplies. Provisions were made for a maids' room.

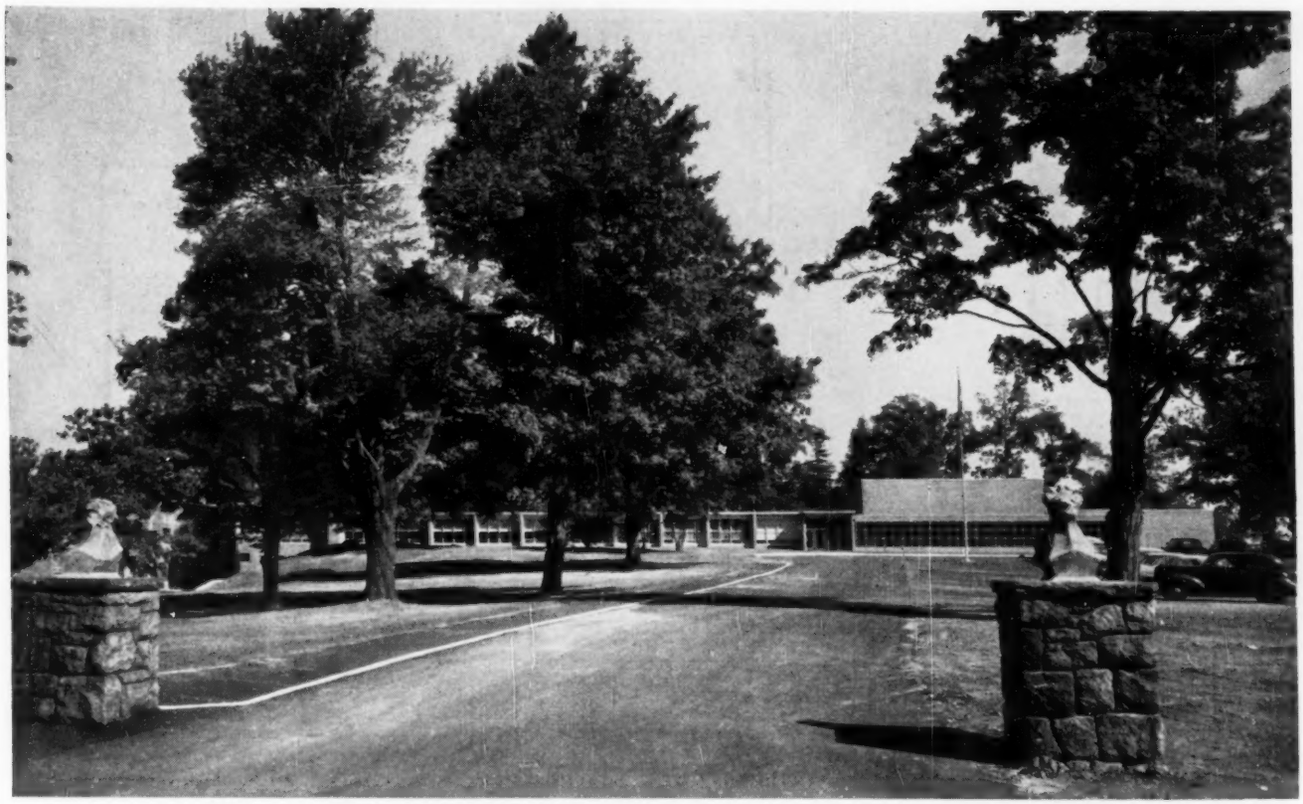
The underground electrical service to the building provides current for floodlighting the campus adjacent to the buildings, the city fire alarm system, the corridor and outside bells, the electric clock and fire-alarm system, the master time and program clock system, the lighting of all areas, and the intercommunication system. There is also underground service to the telephone system.

Equipment. All furniture in the building is blonde in finish. The furniture in the regular classrooms consists of tablet-arm chairs, tables, folding tables, and chairs. Special furniture was provided in the home training units, science and art rooms. The cost of the furniture and equipment, including the cafeteria, was $75,624.43.

Building Proper. This delightful building is a good shelter, well planned as to educational functions, modern, constructed of the most fire resistive materials, and constructed of durable materials which should keep maintenance and operation costs at a minimum. The costs to date of the plant are:

Land	$ 32,300.00
Construction Costs	1,091,166.43
Architects' and Consultant Fee	65,469.99
Equipment	75,624.43

A typical classroom



Morris Township Junior High School, Morris Township, New Jersey — Kelly & Gruzen, Architects, Newark, New York, & Boston

A Junior High School With a Built-in Program

JAMES M. LYNCH, JR., PH.D.

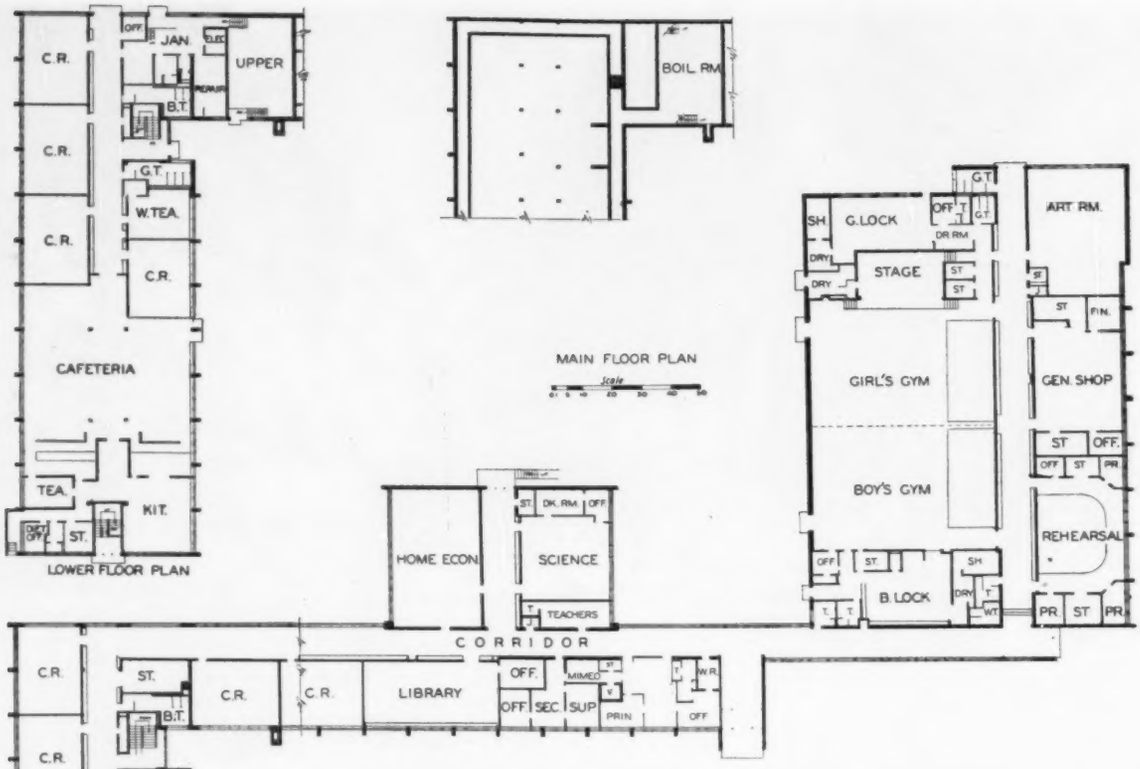
Principal, Morris Township Junior High School
Morristown, N. J.

"Build it to fit the educational program!" That was the instruction given the architectural firm of Kelly & Gruzen (Newark, New York, and Boston) and that's exactly how the new Morris Township Junior High School, near Morristown, N. J., was planned and constructed for completion at the opening of the 1954–55 school term.

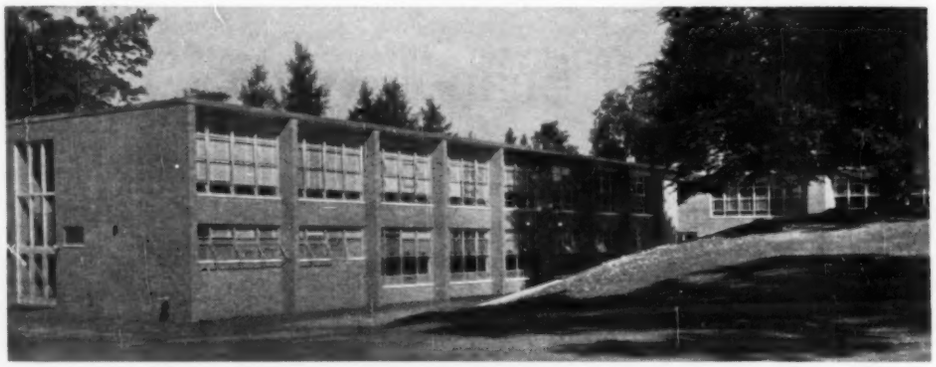
The insistence that the new structure must meet the present and foreseeable-future needs of the curriculum came largely because the new junior-high-school building was to succeed the highly rated Alfred Vail Junior High School which had been in use over 23 years. In that time physical limitations gradually hampered expansion of the educational offerings in areas such as industrial arts, music, art, home economics, and health education. Tight scheduling and ingenious modifications of "ordinary classrooms" enabled the faculty of the Alfred Vail Junior High School to develop a program of instruction which met adequately the needs of the students but only at the cost of tremendous time and effort.

The new Morris Township Junior High

Light wood furnishings help to create a quiet air in the cheerful library.



Morris Township Junior High School, Morris Township, New Jersey — Kelly & Gruzen, Architects, Newark, New York, & Boston



The classroom wing

School is the product of the combined thinking of a board of education, a lay advisory committee, an architectural firm, and especially a professional staff headed by an unusually able superintendent, Dr. Malcolm Robertson. Every individual on the staff whose work would be affected by what was put in, or left out, of the structure had a real opportunity to influence the final decisions made by the board and the architect. A functional, easy-to-work-in building is the result.

First of many steps in achieving this goal was the purchase of the site for the school. An attractive, wooded, 32-acre tract on a knoll overlooking the Whippany river and surrounding countryside was selected because of its natural beauty and approved by the electorate. It was early determined to allow about four acres of this former show-place estate for the present building and future expansion area, to develop about five acres for playground use, and to leave the remaining 23 acres in woodland for gradual development of additional outdoor facilities such as a picnic area, in-the-open classroom sites, an amphitheater, etc.

The building itself was designed to conform to the contour of the land and many valuable trees, some of them imported over 100 years ago, were preserved. Two magnificent specimens of copper beech, with trunk diameters of about four and a half feet, were selected as focal points around which the school was placed.

The 480-pupil school is largely a one-story structure in three sections. The center section, about 300 feet from the street, contains administrative offices, the library, a clinic, a homemaking room, and a general science laboratory, as well as two general purpose classrooms. To the west is a two-story classroom wing, with a cafeteria on the lower level. Because this wing was constructed where the land falls away sharply, the top floor is a continuation of the rest of the building and the lower level is still completely above ground. The large east wing houses the combination gymnasium-auditorium and the special art, general shop, and music facilities.

Since Morris Township is growing steadily (population: 6500 in 1940; 9000 in 1954; estimated 15,000–17,000 in 1970) care was taken in the original planning to ensure that additional facilities can be added at any time. An area for a possible

The School Building in Its Context —

The auditorium-gymnasium is readily divided into two smaller gymnasiums; the girls' locker facilities serve as dressing rooms for theater activities.

future auditorium was left at the southeast corner of the building; both the west wing and the east wing can be expanded to the north when, and if, it is ever desired to do so. Mechanical facilities are also easily expandable; the boiler room, steam supply and return mains, the plumbing, and the electric services have been designed to accommodate a 100 per cent increase in the size of the building by the addition of the required loads rather than by basic changes in the system.

Like its predecessor, the Morris Township Junior High School program is designed for a school whose student body arrives and departs en masse on school buses. Recreational activities before school and at noon are as normal a part of the day's functions as are the English, history, and mathematics classes.

Except for a schedule of athletics and some dramatics for those boys and girls who wish to take part in an after-school program (and can find a way to get home on their own) all the so-called extracurricular activities are offered within the framework of the school day. Fine and industrial arts, music and science enjoy full status on the regular schedule and an interest-club program is built into the week's work. An exceptional instrumental-music program, topped by a fully-instrumented symphonic band, is carried on.

Many courses in the school have a practical twist. Ninth-grade academic students, for example, may select courses in personal typing and high-speed longhand to aid them in reducing preparation time of those ubiquitous themes and term papers demanded of college-bound youth. Likewise business students have an opportunity to gauge their interest in distributive education through operating a student-owned store.

For nearly a quarter century junior-high-school education has been making its mark in Morris Township, N. J. The new building, voted by the citizens to maintain and expand the curricular offerings, is a challenge to the staff to do even better.

The general science room

MORRISTOWN HIGH SCHOOL CONSTRUCTION DETAILS

Construction — brick, concrete, steel
Windows — aluminum sash
Roofs — insulated
Ceilings — acoustic tile
Classroom floors — asphalt tile
Gymnasium floor — hard maple
Gymnasium partition — steel
Boilers — steel low pressure, oil burning
Ventilation — unit, thermostatic control
Lighting — incandescent, concentric ring
Communication — electric time clocks, intercommunicating telephones, radio
Toilets, urinals, drinking fountains and wash bowls — porcelain
Toilet partitions — enameled steel
Lockers, wardrobes, and cabinets — steel
Chalkboards — green
Bulletin boards — cork
Office and teachers furniture — steel
Window shades — Venetian type
Cost — $975,000 including fees but excluding site

NEW HIGH SCHOOL

Havana, Ill. The board of education has completed and occupied a new senior high school plant. Located on a 21-acre site, the structure is in the form of the letter "U," with the physical education and cafeteria sections in one wing and the shop and library in the other wing. An academic section in the middle section provides space for chemistry, home economics, agriculture, distributive education, office practice, as well as rooms for vocational, commercial, and general education courses. The building contains 1,360,000 cu. ft., and will cost when completed a total of $1,300,000.

A Theory of School Design

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A theory of school design concerns the most practical issue in the world — the next generation, now in progress "from toddling to adolescing." We are supposed to do something for them while they prepare themselves to be succeeding individuals and the citizens of tomorrow.

Design is always an extremely responsible and dangerous undertaking; the less responsible, the more dangerous. It is not only *for* education, it is part of it if we define education as a cluster of measures to take influence, especially on younger human beings. Their more plastic stage is physiologically well known, and the reasons why such early plasticity is later followed by refractory rigidity are of a basic, organic nature.

If this world were completely static and unchanging, our task to design educational facilities would be sufficiently complicated. But since it is by no means so and there is dynamic change all around, the problem is to provide and prepare for perpetual reorganization.

School buildings, plans and details for them must be capable of recurrent reorganization for various reasons.

First of all, new materials, supplies, equipment, instrumentalities — I almost would have said gadgets and gimmicks — come to the fore on a million impressive advertising pages.

While we look over our near shore of the ocean of happenings to the distant horizon of a far future, the breakers of this kind of "progress" are most noisy and conspicuous, but they bring with them also a dangerous undertow. For all the foaming foreground activity we are likely to lose sight of depth and expanse. Education has for thousands of years been deeply influential. Carried on under a Mango tree with a few disciples, not with a mass attendance provided by law, costly instrumentalities were hardly in evidence and did not change from one fashionable novelty to the other.

There is a second and I believe more profound reason why schools of today and tomorrow must be different from those of yesterday. Quite apart from the boisterous glorified progress of materialistic technology, that is no unmitigated benefit and has introduced so much self-interference, there has been a stupendous advance in the pursuit, long recommended by philosophers. The recommendation was to recognize yourself and thus the total human being which is at the bottom of yourself.

The biological and physiological journals of the world have published more dependable papers and ingenious observation on the subject during the past three decades than the devoted study of Aristotle's writings has yielded during three millennia.

Design for the human being presupposes information on it and its operation. This information is deepening by leaps and bounds and will reflect itself in modification of design principles.

The theory of school plant design will not be speculative but based on systematic observation of life processes, such as growing, maturing, fatiguing, assimilating, absorbing. Psychological repercussions of these processes, such as habituation, memory awareness, etc., are gradually being substantially underbuilt and more factually defined in their detail and concatenation with environmental factors by the experimentalist and the brain physiologist.[1]

The process of learning is one of the intrinsic life processes in all the higher organisms. Learning is by no means confined to the classroom, but according to our current principles of bringing up, it nevertheless has its focus there.

Classrooms should not be a world apart from living rooms and home surroundings if we do not want to bewilder and disturb children by split experience and irreconcilable duplicity. New trends in home building should therefore vitally interest the school designer and the accredited educator who determines the physical building program.

Family homes have shed many monumental trappings of the Victorian age, have become freer and lighter, less ponderous.

Public buildings for purposes of education are usually constructed firmly and of materials resistant to wear and physical depreciation. This is as it should be. They last longer and in the past they have, indeed, often greatly and painfully outlasted their usefulness as an educational tool and as an important element in the physical community or urban neighborhood they were to serve. *This is not as it should be!*

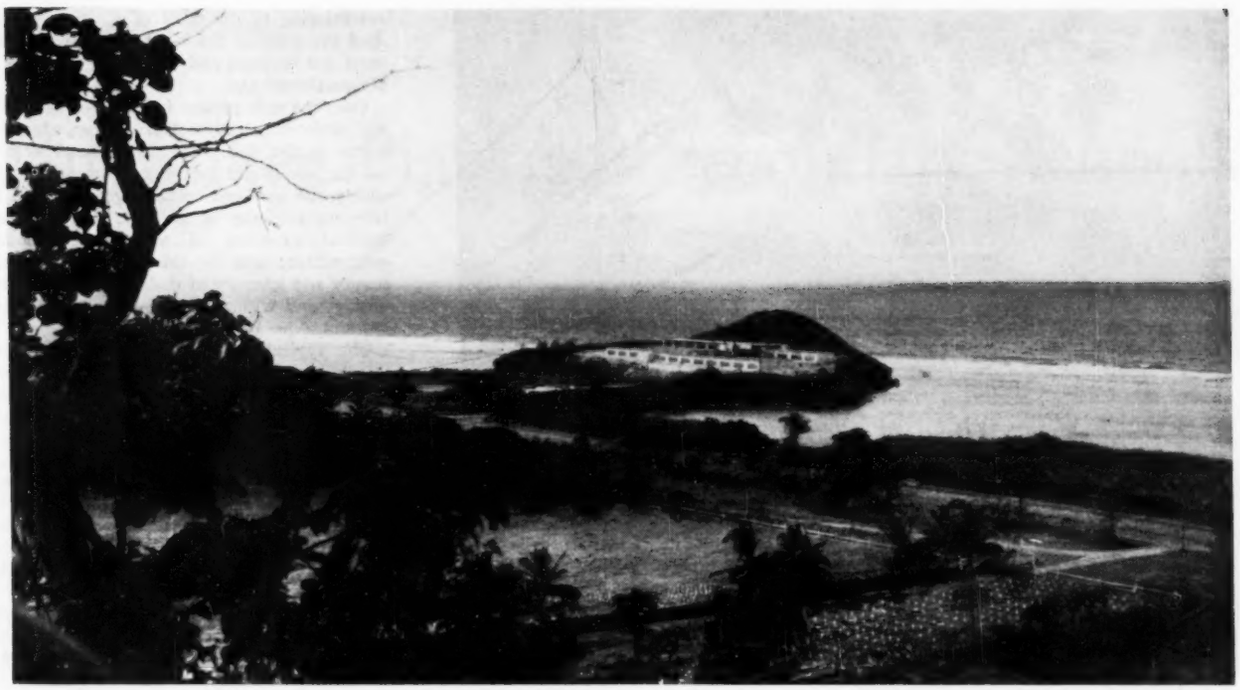
We must require a building to be good enough from an operational point of view to serve over the entire amortization period of, for example, a reinforced concrete or brick construction. If so, it is clear that it will have to be designed with all the possible and available *vision into a future of half a century!*

It is uneconomical to leave vision aside. From a fiscal point of view, from the point of

[1] *Survival Through Design*, a cycle of essays by Richard Neutra. Oxford University Press, 1954, treats design and especially school plant design as "applied biology."

The Corona Avenue School in Los Angeles has been designed to combine outside and inside instructional space without additional building cost.

conditioning to the mind of a young person. And the scale of the whole and all its parts



The Adelup School in the Guam Mariana Islands is situated on a rocky peninsula, surrounded by vivid tropical growth and the emerald green shallows inside the White Coral Barrier. The building serves both "Stateside" and Guamanian children.

view of the accountant who wants to spread devaluation over a long row of years, the very best look into the trends and needs of the future is, indeed, a mandatory element of the program.

Should there be things coming along which our present means and budgets do not permit us to incorporate into the design at this moment, let us try to make reasonable provisions for them; let us make the projects flexible enough so that adjustment to broader and modified operation does not later become a heartbreaking task.

School design has been cursed and hampered by minimum standards and by preventive legislation's intent to just prohibit the worst. I have long maintained that constructive advance comes from the exhortative, optimistic effects of exemplary action rather than from frowning. sour-faced policing, and prohibitions. I have for more than thirty years worked up model designs of schools, and a few proceeded from my illustrative efforts into realizations which were noted and even followed in California and in a number of distant places. It proved to me that climatic or physiographic regionalism is a less formidable obstacle than assumed in finding the common denominator for development of schoolrooms and school plants serviceable in many particulars.

Much more difficult seems the integration of a school into the communal scene and vitality, in varying regions.

It is here that the new school must substitute for natural life experiences once so commonly available, but now so rare. It is no longer like the little red schoolhouse of bygone days in a rural district, merely concerned with bringing the supplement of the three R's to children who lead an amply practical and instructive life.

First, perhaps, this school must give up isolation and too rigid enclosure. Rudolph and Elizabeth Mock, criticizing school buildings, have called "children realists quick to detect something foul." What they have so often directed in the past was that their school used to be pretty far removed from "real" life and detached from their or any concrete interests. The school of the future will greatly regain prestige and attractiveness in the eyes of children when the place and its activities are suffused by the pleasurable atmosphere of common participation of all age groups. Learning is no longer an isolated chore for defenseless kids cloistered with their taskmasters. It may sound provocative to classroom persons and administrators but ways may be found to deepen the educational impact of schools of all grades, by demonstrating that schools are not strictly the domain of the "underaged," but the heart of the neighborhood, intimately dear to grownups and full fledged taxpayers.

Like in the days of pioneers and their homesteads, children may perhaps again come to share spaces and facilities with adults. In many cases they may proudly act side by side, help to serve a common purpose together with the naturally admired adults. In past periods the young ones profited from this, mentally and emotionally. Ultimately, there may be found a way to have craft shops for all, stables, sties, a sort of a farmyard to engage in animal husbandry, a green nursery to practice garden craft; the rural world which is so much a part of civilizations shall not be entirely forgotten by urban beings, if they are not to lose contact with the rest of mankind. It is realistic to be watchful against this damage.

Of course, small children will have their suitable play equipment and picture-book library wing. But the play fields, the library, the hall for physical education and square dances, as well as the cafeteria and the health center, may perhaps be developed as a good manifold investment to multiple usage for all the age groups mixed as well as at other times, of course, segregated by allocated use periods. Janitor's work multiplies.

School planning for the future should at least not lose sight of the obviously foreshadowed neighborhood centers which now are predicted as a certainty. There will be needed many-sided co-operation in an age of departmentalization, but the school board will and ought to have a leading position in such a development.

All more intimate communal and recreational facilities of a neighborhood will naturally exfoliate from the school, the kindergarten, the nursery where mothers congregate to discuss diets in the demonstration kitchen or wearing apparel in the sewing room.

Elementary and upper grade schools, where they exist around the States, will play a proportionately different role in various regions.

The assembly space, the auditorium, the band rehearsal, and the exhibition hall where acoustical and visual appeals to the community will be in perpetual preparation by well-guided amateurs; the discussion club and playrooms where all neighborhood issues will find their lively hatching place, may equally serve many purposes of adolescent and adult after-work activities.

The entire plant of the future neighborhood center with school facilities as its nucleus, used most hours of the day and days of the year, may well be tested and proved by square-foot hours of full usage. This will serve *as the livability index of the layout*. It may greatly help toward a willingness to vote for bonds and funds.

He who at least somewhat has trained himself in articulate speech, in dance, crafts, arts, drama, music, enjoys — by acquired in-

A brick wall protects the small children of the Kister Avenue School, Los Angeles, where classrooms open by a wide sliding glass partition onto a paved play area. Aluminum louvers above the glass partition filter the light.

feeling — performances in these fields. The psychologists call it "empathy." Even small but cohesively active groups will make a neighborhood alert to otherwise dormant possibilities of active enjoyment, and professional performers of quality will find response and reward. Homogeneous neighborhood audiences, once so common and fertile in the world of the past, will be reborn, and children will be on the stage as well as in this audience, an integral part of the over-all group, as they have been throughout the ages.

Multiform special gatherings of face to face scale are as important in cementing a neighborhood or a school attendance as an occasional total assemblage. The neighborhood community center, clustered about the school as its core, is not a monumental institutional affair to be viewed only in an overawed glance. It is, as we said, a multiform elastically articulated complex to be enjoyed, one piece after the other and without competitive distraction of its parts. In fact, neither the monumentality of palacial royalty nor any kind of the imposing style of authoritarianism seems to fit for the child as well as for the adult of tomorrow.

Plenty of human charm and human scale will be needed. Wherever possible, a one-story layout with various green courts, lovely landscaped windsheltered patios, and connecting covered walks may prove more flexible for partial modifications and also more economical to construct than a fireproof, multistory, voluminously boxed together affair.

And the *school plant itself in midst this neighborhood* and community context? What principles will guide the design of its principal rooms to learn and to teach in?

There are principles that seem to underlie a contemporary philosophy of education, broad features that characterize the views of this new morning.

The physical structures of schools must further the trend to emphasize and premiate or reward co-operation rather than competition. Children who enter a classroom now will not sit in a sort of isolation parallel to each other and silently or only furtively whisper to neighbors in their screwed-to-the-floor desks while supposedly listening to a preachment resounding from the blackboard. The signal of a bell may not always switch their minds from all arithmetics to all spelling for a measured 45 minutes or so. Their interests, their stimulation, their succeeding, growing beyond "periods" will be in teamwork; by helping rather than by outshining their fellows. A co-ordinated muscular and sensory activity will call for flexible grouping of humans as well as of furniture so as to adjust the educational environment to varied and frequent concerted efforts, a very gradual progress may be needed. More space, more diffused light, light where needed from more sides, less sleepy hot-air cushions around trainees, less fixed enclosures and more extension into the outdoors, and less mere-heating systems with pollution of the air for economy's sake. Insulation of acoustical aids toward quietness, and reverberation well controlled toward more distinct articulation of whatever sounds are offered, which shall all be well defined, not blurred or masked by noises while filtering into the minds. Visual aids will be important, not only to the presentation of a particular subject, but the children's mental development at large can *gain by clarity and simplicity and sensitivity of design applied to the building itself*. Its clean-cut spaces, illumination details and color schemes are of educational influence themselves.

Orderliness in everything used and cleanliness of all finishes must be, and must appear to be, restorable with ease and to the conscious pleasure of the trainee. The building must not pose nuisance problems and chores devoid of such a potential pleasure accent. To see oneself in a spick-and-span, clear-colored surrounding is in itself a momentous conditioning to the mind of a young person. And the scale of the whole and all its parts must not be cruel and foreign to the child in his particular age.

Once the ever present influence of the physical environment is recognized as an educative factor of the first order, the general as well as the specialized learning room, the open courts, the play and entrance grounds, will all take on inspiring significance. They are ingredient elements of an education-bound composition; and by this very reason, continuity and integrity of design must be accomplished, and within it abrupt gaps and cleavages must be avoided.

The typical classroom will, unless urgent reasons are against it, and, wherever possible, should be arranged in one-story wings enjoying liberal contact with the outdoor grounds, both visually and by physical egress. On many friendly weather days the instructional area can be interestingly widened by adding to it a bit of the outside space. The strict division of life into: one outdoors for recreation only, and one indoors for mental work and absorption is erroneous in the light of anthropological precedent and research.

While structure and shape of the cross section of classroom wings might have to be more or less rigidly established for the sake of building economy, it may be possible to make acoustically tight cross partitions and fitted-in workbay furniture and material storage compartments, removable and rearrangeable. It may well be expected that educational procedure will remain sufficiently subject to change that adaptability of the physical plant may always hold an advantage.

The typical classroom can provide an ample light influx from the corridor wall. This "breather partition" may, for example, consist of a series of exhibition cases with obscure and clear glass on either side but topped with a continuous semivacuum hollow glass block skylight.

Such exhibition cases thus become a source of well-diffused illumination. The visual aids and exhibits are well to be displayed in a dramatically impressive illumination and may grow into a significant ingredient in the educational appeal. Sink and drainboard counters are placed in designated areas or in adjoining "work bays" of a size corresponding to the described exhibition spaces.

The sunny side of the classroom is well sheltered by roof overhangs against concentrated radiation, but provides not only ample egress to the classroom lawn patio surrounded by substantial hedges, but the typical sliding glass partition also permits a free combina-

(Concluded on page 114)

A courtyard view of the Adelup School showing a covered assembly in the background

year senior high school enrollment are reorganized from time to time to meet arithmetical calculations determine the

A Continuing Program —

Milwaukee Plans for Secondary Schools

ARTHUR KASTNER
Registered Architect
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Milwaukee Board of School Directors

After a period of twenty years during which time no secondary schools were built, the city of Milwaukee, Wis., like many other large urban centers is facing a growing need for additional junior and senior high school buildings. A school building program set up by the Five-Year Building and Future Sites Commission was adopted by the Milwaukee Board of School Directors on February 3, 1953. Included in the report of Milwaukee's school building needs are two complete senior high schools, four complete junior high schools, and improvements for two senior high schools and two junior high schools. The citizens of Milwaukee in April of this year approved by a large majority the issuance of bonds to cover the cost of the major part of the building program.

Maximum Capacity Reached

The presently available facilities for pupils in the secondary schools are now rapidly approaching their maximum capacity. The continuous expansion of the city through annexation of surrounding rural areas, the rapid construction of large numbers of residential units in new sections, the completion of building in older areas, and a steady high level of births have brought about the tremendous building program. For the past several years new elementary schools have been built in the rapidly growing sections of the city. The need for additional secondary schools must now be satisfied by the construction of buildings to house the anticipated increase in enrollments at the senior and junior high school levels.

Many factors are involved in the educational planning of secondary school buildings. A replacement for an antiquated high school in a relatively stable district differs in many respects from a replacement of an older building on the fringe of a new and rapidly growing residential area. The courses of study may be alike but the number of prospective students will differ. Some of the factors which must be carefully considered are:

1) The number of pupils to be housed both in the peak load period and when the district becomes stable.
2) The course of studies proposed for the school.
3) Grade levels to be housed.
4) Available facilities in nearby schools.
5) The influence of parochial schools on probable enrollment.
6) Availability of public transportation.
7) The size of the school district.
8) The status of residential construction in the school district.
9) The rate of construction of new residential units — how fast the remaining lots are used for homes.
10) Type of homes — single or multiple family.
11) Public housing projects in the district.

It is quite obvious that many of the above listed factors are interrelated and require detailed study, however, of most importance to the planner are: (1) the number of pupils estimated for enrollment, and (2) the proposed courses of study.

The prediction of probable enrollment for any school demands careful analysis of all the factors involved. The present enrollment for a new school, if completed and ready for occupancy, can be readily determined by totaling the number of children now in attendance elsewhere but who live in the new district. The enrollments for the succeeding years can be found by totaling the enrollments of the various grades in the contributing elementary schools. These totals may be affected by residential construction in new areas or by the removal of homes in older areas. The size of a school and the amount of facilities it must provide should be determined by a stabilized enrollment however difficult it may be to obtain.

The type of homes, the peculiarities of the district, and the characteristics of the families all have a bearing on the size of the proposed school. In our studies of school districts we have noted that many small homes rapidly constructed in new areas are usually occupied by young parents with growing families. The occupants of these dwellings are for the most part homeowners who will very likely remain in the school districts after their children have passed through the elementary and secondary schools. The establishment of a working, stabilized capacity is of utmost importance in our attempts to avoid overbuilding. Schools do have peak loads for which emergency facilities must be provided but permanent buildings should be designed to meet stabilized enrollments in the interest of economy.

In order to illustrate the use of estimated enrollments, a table of predicted enrollments for a proposed three-year senior high school is submitted.

This table is based on recorded previous enrollments in the contributing elementary schools. The two heavy stepped diagonal lines separate portions of the table affected by different conditions. All figures above the upper diagonal are estimates based on the numbers of children now in school. The numbers between the two diagonal lines represent estimates based on recorded births in the district and the remaining figures are determined by estimates of the number of births which may occur. The pertinent figures which apply to the three-

TABLE I

WEST DIVISION HIGH SCHOOL DISTRICT

Contributing Elementary Schools — 18th, McKinley, 27th, Story, Wisconsin Ave. and Walnut St.*

Estimated Enrollment by Grades 1954–55 Through 1974–75**

	K	1	2	3	4	5	6	7	8	9	10	11	12	Total K–6	Total 7–8–9	Total 10–11–12	Total All Grades	
Sept. 1952	907	410	360	405	359	352	362	383	409	424	443	329	292	3159	1216	1064	5435	1952
Dec. 4, 1953–54	997	446	395	396	413	343	354	412	343	506	421	386	273	3344	1261	1080	5685	1953
55	990	533	400	374	390	405	343	370	378	378	512	364	340	3455	1126	1216	5797	54–55
56	990	550	498	374	370	385	405	358	340	417	382	442	320	3570	1115	1164	5829	55–56
57	1000	550	495	463	370	365	385	423	328	375	421	330	388	3628	1126	1139	5893	56–57
58	1050	555	495	462	450	365	365	403	388	362	379	364	290	3742	1153	1033	5928	57–58
59	1050	585	496	462	450	446	365	382	370	428	366	328	320	3854	1180	1014	6048	58–59
60	1050	585	525	463	450	446	446	382	350	408	433	316	288	3965	1140	1037	6142	59–60
61	1060	585	525	490	470	446	446	467	350	386	412	374	278	4022	1203	1064	6289	60–61
62	1070	590	525	490	470	452	446	467	428	386	390	356	328	4043	1281	1074	6398	61–62
63	1080	595	530	490	470	452	452	467	428	472	390	338	312	4069	1367	1040	6476	62–63
64	1080	600	530	493	471	452	452	473	428	472	477	338	297	4078	1373	1112	6563	63–64
65	1090	600	540	494	472	453	452	473	435	472	477	413	297	4101	1380	1187	6668	64–65
66	1090	605	540	500	480	454	453	473	435	480	477	413	362	4122	1388	1252	6762	65–66
67	1100	605	542	503	484	475	454	474	435	480	484	413	364	4163	1389	1261	6813	66–67
68	1100	610	542	505	486	478	475	475	436	480	484	418	364	4196	1391	1266	6853	67–68
69	1090	610	545	505	488	478	478	500	437	481	484	418	367	4194	1418	1269	6881	68–69
70	1080	605	545	507	488	480	478	505	460	482	485	418	367	4175	1447	1270	6892	69–70
71	1080	600	542	507	490	480	480	505	464	508	486	420	367	4179	1477	1273	6929	70–71
72	1070	600	540	505	490	482	480	508	464	512	512	421	370	4167	1484	1303	6954	71–72
73	1060	595	540	503	488	482	482	508	467	512	516	443	371	4150	1487	1330	6967	72–73
74	1050	590	532	503	486	480	482	510	467	515	516	447	390	4123	1492	1353	6968	73–74
75	1030	585	530	495	486	478	480	510	469	515	520	447	392	4084	1496	1359	6937	74–75

*Girls' Trade enrollment not included.

**Prepared by A. H. Kastner, January 25, 1954.

year senior high school enrollment are found in the vertical column entitled "Total, 10-11-12." It will be noted in this column that the actual enrollment on December 4, 1953, was 1080. The changes in enrollment year by year are given in each successive step of the column, the peak of 1359 being reached in the school year 1974–75. The last five figures of the column are based entirely on estimated births; however, all the other figures are estimates to some degree of children now in school or who will be in school within the next few years.

After considering the figures on the table and the fact that the present school now houses approximately 500 additional students not residents of the established district, the figure of 1350 pupils was set as the proposed planning enrollment for the school. It is anticipated that the out-of-district pupils will continue to attend but in diminishing numbers.

Facilities Needed

The determination of the working capacity of the school brings us to the consideration of the educational facilities needed for a senior high school of this size. The courses of study for the high schools in Milwaukee have been established for many years and have been modified and reorganized from time to time to meet changing needs. The total number of students enrolled in various subject fields are recorded in semiannual reports of subject elections for all the existing secondary schools. For the purpose of building the tentative educational program for a proposed school, it is assumed that the courses of study will be the same as now offered in the schools. Several of the most recent reports of subject elections for the city as a whole are compared with city wide enrollments in the senior high grades. The total of each subject field elections are related to the total enrollment in a grade, giving a proportion which can be used to determine approximately the number of pupils who will elect that subject in a senior high school of 1350 students. Knowing the total enrollment in each of the upper three grades of all the secondary schools in the city and the anticipated enrollment in the same three grades of the proposed school, enrollments or elections in the various subject fields can be determined.

Many formulas and methods for determining the number of the various facilities needed for secondary schools have been proposed and have been used. Our Department of School Housing Research prefers to make an intimate and detailed study of all local factors and by simple arithmetical calculations determine the tentative outline of the number of standard and special areas needed. This first draft of the tentative educational program is examined in terms of the peculiar characteristics of the school district and the particular previous elections in the various subject fields if the program has been established for a replacement of an existing school. Adjustments are made at this time. Staff members who are specialists in various fields of education are consulted for suggested changes or additions. The revised educational program is checked again to determine the capacity of the proposed educational facilities. Lack of space prevents a complete presentation of all data involved in this type of study.

Like many other large cities, Milwaukee has a large building program and limited funds available for continuous school building. Facilities which are listed on the educational program as desirable features of secondary schools are being carefully scrutinized. Every effort is being made to provide adequate modern classrooms and the many special areas at as low a cost as is consistent with safety and health. This means that each area and its special needs are being studied in terms of educational value and costs of maintenance and operation as well as the costs of construction.

How We Won . . .

Our School Bond Referendum

DONALD SAYLES
JOHN MORAN

Teacher and Public Relations Director, Respectively
Schenectady Public Schools
Schnectady, N. Y.

The Schenectady, N. Y., board of education won approval for a new high school in June, 1954, under circumstances which at first seemed to point to almost certain defeat.

On the positive side, there had been a general awareness for more than twenty years that "something ought to be done" about old Nott Terrace High School, which the new school would replace. But on the negative side were these points:

1. The community was suffering a rise in unemployment.
2. The site for the new school, purchased some four years before, was three to four miles distant from two major areas of town.
3. Catholic schools were planning a major expansion.
4. Some quarters were expressing a serious lack of confidence in the school board and administration.

The latter point proved one of the more difficult to deal with. Two years before, the board had suffered a crushing defeat in a referendum to authorize three elementary building projects and to increase the school tax limit. After voters had turned down both issues by margins of nearly four to one, various "opposition" groups set up demands that board members and the superintendent resign. Sporadic attacks followed on school program, finance, administration — on practically all phases of school operation.

In placing the high school issue before the people, the board fully realized that a second such defeat could well have disastrous consequences for the entire educational program. Since 1931, Schenectady has had two public high schools. Mont Pleasant High School, built that year, is a modern building in every respect. It is on the south side of town and serves primarily the youth in that area.

The old Nott Terrace High School, built in two sections in 1903 and 1911, is on the north side of Schenectady and draws its enrollment largely from that area. For years the old school has been rather aptly described as being in "pretty tough shape." Experts had expressed the view that it wasn't even a "good" school the day it opened.

Some instances: Exceedingly narrow corridors, no athletic field (later a "sand lot" was acquired on another site), gymnasiums and a library that are far too small, a basement cafeteria which fully merits being called a "crying shame," and an auditorium seating less than half the student body.

The question of a new high school to replace Nott Terrace reached a critical stage in the late winter of 1953. At that time a citizens advisory committee named by the board recommended fire safety work at the old school amounting to an estimated $105,000.

To board members and others close to the problem it seemed poor judgment to put this much money into the old school which ultimately would have to be replaced anyway. Moreover, the $105,000 could be expected to do nothing in the way of modernizing or enlarging the 1903–11 school. A consulting firm recommended outright abandonment of one of the two buildings comprising the old school. Running through its report were references to facilities representing "a concept of teaching which has long since been outmoded."

Specifically, the board's proposal was for authorization of a bond issue up to 5 million dollars for constructing the new high school. The estimate also included costs of equipping

the new school, site development, architectural and legal fees. The new school, like the old one, would be on the north side of town. The 32-acre site for it would allow for a fully "comprehensive" program — drawing together on one campus both the academic and vocational facilities which for years have been housed in separate facilities a mile apart.

With so much to be said for replacing Nott Terrace with a new high school, the case appeared on its own merits to be a strong one. On the record was the support of numerous community groups — including the Schenectady Chamber of Commerce and the City Planning Commission. However, the proposal won only after the most intensive campaign ever conducted here for an issue of this kind. The margin was 922 votes out of a total of 12,640.

While defeat of the two other school issues in 1952 had strengthened the groups opposing board policy, it had also precipitated formation of a lay group concerned for the welfare of the public schools. It was this latter organization, the Schenectady Citizens Committee for the Public Schools, which organized and carried through the campaign in support of the new high school.

These were the problems and the manner in which they were faced:

Problem 1: Economic Situation

The estimated cost of 5 million dollars loomed pretty large to a community where increasing numbers of families were feeling the effect of layoffs. It was a point which the opposition was expected to make the most of — and did. The cry went up that "now isn't the time" to think of building a new school.

We countered with statements in the press and public meetings that the present was, if anything, more favorable. We pointed out that recent bids for new elementary construction had come in at considerably below the estimates. The board went on record pledging that if bids for the new high school followed the same pattern, the resultant savings would be used to cut the total construction costs.

In five public discussion meetings, the board of education explained that the cost would be held down where possible and invited the citizens to contribute suggestions.

Through the initiative of the Citizens Committee, statements were obtained — and published — from many civic leaders expressing belief in the future growth and development of Schenectady and relating this to good schools.

The school board, in five public discussion meetings throughout the city, made it clear that the new school would be constructed as modestly as possible consistent with the need. A board member who is a former president of the Schenectady Real Estate Board made the point at these meetings that property values in Schenectady could be expected to increase or decline depending in large degree upon whether the city continued to have adequate facilities for family living. At every opportunity we plugged the campaign slogan — "You Owe It To Yourself."

Problem 2: Lack of Confidence in the Board

Statements by some of the opponents bore heavily on the fact that the Schenectady board of education is appointed. Referring to it as a "taxation-without-representation" board, they said in effect, "well, maybe we do need a new high school — but in any event, let's wait until we have an elected board of education."

It appeared the only way to counter this point was to have an elected board — if that was what the people desired. Thus, before the campaign got under way, the board voted to place this issue before the community also — but in the fall, after the spring referendum on the new high school. A few persons indicated dissatisfaction with this; they wanted both issues up for balloting at the same time. But, generally, the action was well received.

Of course, the best answer to those who questioned the citizens' confidence in the board came on referendum night.

Problem 3: Deliberate Neglect of the Old School

This charge was related to Problem 2. Persons who had expressed a lack of confidence in the school board, substantiated their contention by arguing that the board had deliberately neglected Nott Terrace High School — had deliberately allowed the school to "run down" to build up the case for a new high school. A particularly strong and aggressive stand had to be taken on this point. Unhappily, there was just enough truth in the charge to make it, potentially, a most effective one.

The charge was met, in publicity through all media, by a straightforward presentation of the facts. We admitted that much basic maintenance had been deferred at the old school. We explained honestly that the prospect of a new high school to replace Nott Terrace had appeared imminent for the past ten years. Facing this outlook, and sharply increasing needs for elementary construction and repair, the board had little reasonable choice but to hold up on major work at Nott Terrace. It was also pointed out that within that period more than $100,000 had been spent in maintenance work at the school for reconditioning that could not be deferred.

One of the first acts under the carefully laid program was the planning of Schenectady's new senior high school. Shown here is one of the countless committee meetings between the architects and citizens and school staff members.

Problem 4: Expansion of Catholic Schools

Our campaign for a new high school came at a time when Catholic parishes all over town were announcing plans for expansion of

their elementary schools. Naturally, this gave rise to some speculation as to whether a Catholic high school might be in the offing — and, if so, what effect this would have on attendance at public high schools in Schenectady.

While enrollment forecasts were a factor in our proposal for a new public high school, it was not so important as some others. The principal need for a new school grew out of expansion of the program — and the effort to fit the new program into a building designed for secondary schooling of 1903–11.

It became our strategy, therefore, to emphasize program inadequacies of the present high school, rather than the prospect of overcrowding. A good case could be made on either ground, but the enrollment picture was not quite so clear-cut — and made less so by the parochial situation. As a more direct response to such speculation, however, the Citizens Committee obtained a statement from the Catholic Diocese during the campaign, indicating that definite plans for a Catholic high school were some distance in the future.

There are at least two schools of thought on the matter of replying to criticism. One is that it is better to ignore such criticism, if it can be ignored, rather than to reply and thereby fan the flames of controversy. The other is that we should take an aggressive stand and reply to all criticism, regardless of its merit or source. Throughout the campaign we followed the aggressive course, and so far as can be determined, the decision to do so appears to have been sound.

Problem 5: Site for the New High School

It was believed the proposal for the new high school would receive heaviest support from citizens on the north side of town, where it would be located, and least support from persons on the south side where most youngsters attend modern Mont Pleasant High School.

This expectation proved well founded when returns came in the night of the referendum. However, several steps were taken to promote the issue in the critical areas on the south side, with the result that the predominatly negative vote there was not heavy enough to offset the favorable returns elsewhere.

The first step was to make it clear that if the new school were not built, there was a real possibility that Nott Terrace would have to be closed and its students sent to Mont Pleasant High School on a "double-shift" arrangement. Care was taken, however, to cite this as merely one of several possibilities. While such action would have placed all students, on both sides of town, "in the same boat," it would have been adopted only as a last resort because of harmful effects on program.

Probably what helped more than anything else in meeting this problem was a particularly active campaign in support of the high school proposal by a joint organization of students from both Nott Terrace and Mont Pleasant high schools. Students from the two schools appeared before assembly programs at all elementary and junior high schools, distributed literature to citizens, conducted essay and poster contests on need for the new school (the essays were published in the local press and the posters displayed in store windows), prepared and distributed special editions of the high school newspapers, spoke on radio

One reason why a new school was needed — a corner of the lunchroom in the Nott Terrace high school.

and television, and arranged a student parade in the downtown section the night before the referendum.

At neighborhood discussion meetings on the south side, the board emphasized that the new high school, like both the present schools, would be open to young people from all parts of the community. The board also pointed out, as did the Citizens Committee, that the school would be designed solely for use by Schenectady residents. This point was significant in view of the fact that the site lies within a half mile of a rather well-to-do suburb clear across town from the south side of Schenectady.

Problem 6: Citizen Apathy

All who took part in the campaign were conscious of the possibility that we could lose by default. Sentiment openly expressed was overwhelmingly in favor of the new school, yet we knew by our experience of two years before how difficult it is to get citizens to turn out and vote on school issues.

Several programs were presented over radio and television — involving pupils, teachers, board members, school administrators and citizens; toward the end of the campaign spot announcements were made several times daily; the "letters-to-the-editor" columns of both local newspapers were used fully; three booklets were prepared and distributed by the Citizens Committee; "buzz" sessions arranged by the committee were held in private homes throughout all areas of the city; the board conducted five neighborhood discussion meetings; statements were obtained from community leaders and published in the local press; a Speakers Bureau booked appearances before all major community groups; news articles were issued daily to the press by either the Citizens Committee or the board; paid advertisements were sponsored by the committee just prior to referendum day, and weekly statements were distributed to parents by school children.

To aid the Speakers' Bureau, the school system produced a 16-minute black-and-white motion picture and two sets of color slides. These visual materials compared facilities at the old Nott Terrace High School with their counterparts in newer high schools.

The tremendous increase in support of the board position over that given to the proposals of two years earlier testified to the effectiveness of the campaign. Yet, efforts to increase the total vote proved only moderately successful. Whereas in the previous referendum, 30 per cent of the registered voters went to the polls, this time the percentage was 38 per cent. True, this was a sharp improvement, and possibly above what can normally be expected in any election on a school issue, yet it remains rather poor testimony to citizen interest in education.

Looking back over the campaign, most decisions appear to have been well taken. One of the first we faced was on the matter of timing. School officials generally felt that the referendum should be held immediately, within time limitations set by law. The Citizens Committee favored a later date to allow more time for organization and execution of campaign plans. The committee's point of view was adopted, allowing almost four months to organize and wage the campaign. According to plan, the campaign built rapidly to a climax during the final three weeks.

Soundness of the committee stand on timing became apparent as issues and inquiries previously unanticipated arose during the course of the campaign. Before referendum day it became clear that a shorter period would not have permitted a really thorough airing of the issues, both direct and tangential, involved in the board's proposition.

One other decision, however, proved toward the end of the campaign somewhat difficult to live with. It was approval of the distribution of promotional literature through school children. There are differences of opinion about this strategy, and apparently some school systems resort to it with no adverse repercussions. Yet, our experience indicates it is something to be especially cautious about.

Nothing that could have been done to bring the issue before citizens was left undone. No area of co-operation with newspapers, radio and television stations was left unexploited. But how to increase citizen interest, if only to the point where we may find at least 50 per cent of the voters balloting, remains a most serious challenge for the future.

NEW PROJECTS

The board of education of the Community High School Dist. 107, Naperville, Ill., is engaged in the erection of three new wings to the present high school. One wing will provide physical education areas so that double classes may be conducted each period, and will also include space for music. A second wing, to consist of an activities room, will be equipped with a stage, rest rooms, and kitchen, and will include a library seating 90 students, three conference rooms, stack rooms, and an office for the librarian. A third wing will comprise 18 classrooms. The entire project will cost approximately $1,200,000.

The board is also constructing a 12-room elementary school, with an activity room, music room, library, teachers' room, and offices, to cost $450,000. Additions are in process of construction at two elementary schools, to cost $190,000. The board will select a site for another elementary school.

BEGINS BUILDING PROGRAM

The board of education of Dist. 151, Burley, Idaho, has plans in progress for a building program to comprise two high schools, a six-classroom elementary addition, and a gymnasium. The Malta High School will be completed in January, 1955, and the other buildings in September, 1955.

auditorium and gymnasium. The board de- whole, is as soundly constructed as it is The building contains 24 academic class-

The Charles D. Evans Junior High School, Ottumwa, Iowa — Karl Keffer Associates, Architects, Des Moines

A Community Plant —

The Charles D. Evans Junior High School

FRANK W. DOUMA, PH.D.

Superintendent of Schools
Ottumwa, Iowa

Like many other midwestern cities, Ottumwa, Iowa, (pop. 35,000) is divided by a river into two main parts. For many years the residential area south of the Des Moines River numbered about one third of the total population and was more or less static. But 15 years ago, several new subdivisions were laid out, and the board of education sensing the need for more classrooms bought two tracts of land — one of 13 acres, the other 12 acres. The fact that the land continued to be used for farming purposes and brought in a rental return did not stop the critics from considering the purchases as unwise. Immediately after World War II, one of the sites was utilized for an elementary school building necessitated by the population growth. Four years ago, it was decided to use the other plot for a new school building which would relieve the overcrowded condition of the only junior high school in the area. This new building is the subject of this sketch.

The Charles D. Evans Junior High School is named after the president of the South Ottumwa Savings Bank, who began his career as a teacher and who has been an important civic leader during a long life. As a member of the board of education he has been, and still is, active in solving the school district's financial problem. He has been especially helpful in the marketing of the several bond issues of the district at a minimum interest cost.

Early in the planning of the building, the architects, Karl Keffer Associates of Des Moines warned the board of education that the building outlined in the educational program prepared by the school executives, could be handled within the $1,250,000 of available funds only if a conventional style of architecture were adopted and extreme care were taken to make all the spaces completely functional. An extremely modern sprawling type of plant could be erected only minus the

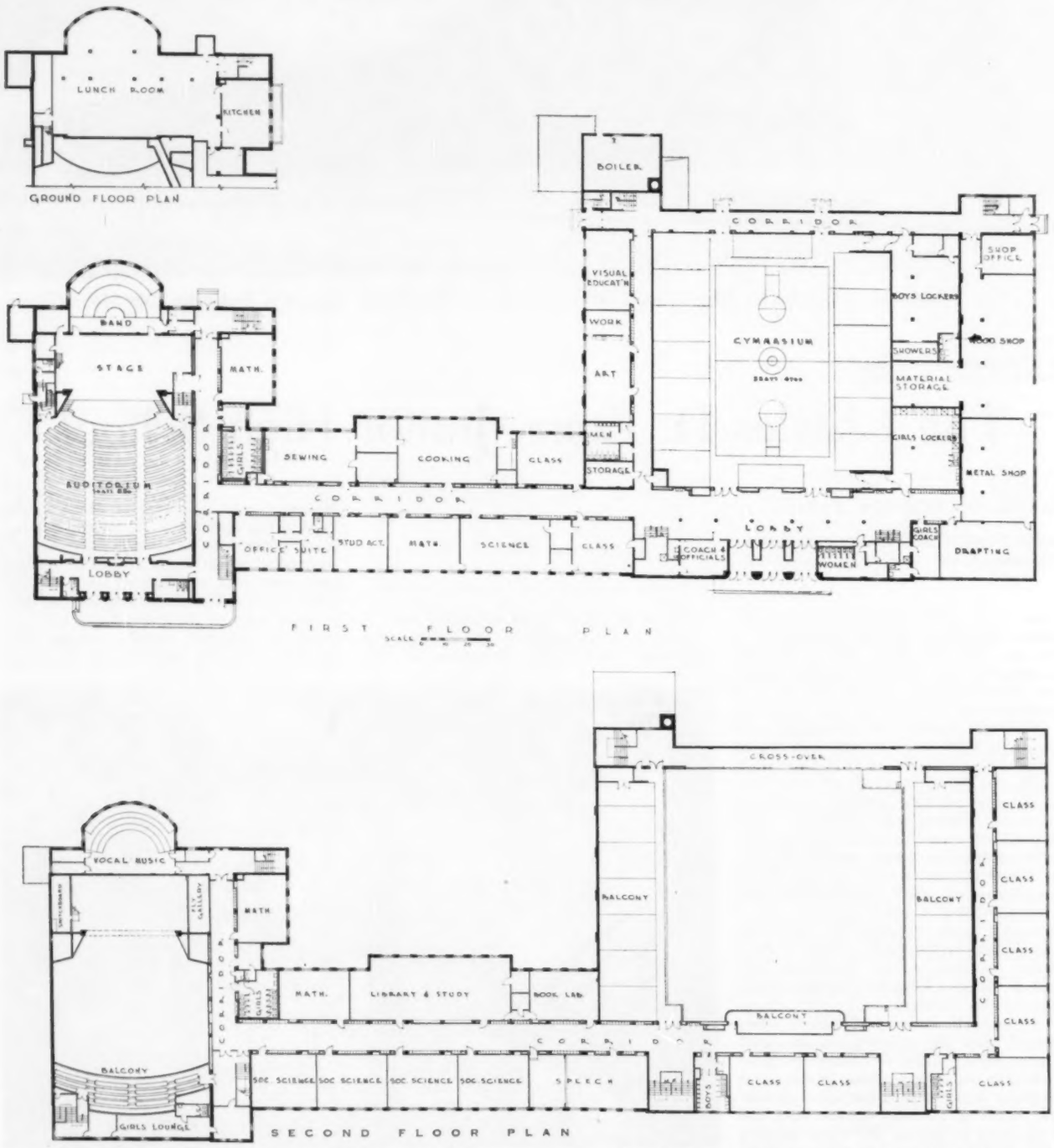
A corridor view of the lobby

auditorium and gymnasium. The board decided that the educational program required a complete building. The bids accepted amounted to $1,200,000, and $100,000 additional was appropriated for equipment. The building approaches in shape a huge letter U, with the auditorium forming one leg and the gymnasium the other.

The building is a two-story structure, 440 feet long and 170 feet wide. It is of steel and concrete construction with a veneer of buff-colored face brick. The entrances are built of sandstone and Minnesota granite. The roof is of poured concrete and the building, as a whole, is as soundly constructed as it is humanly possible to make it. All of the corridor floors are of terrazzo, the walls of the corridors are glazed tile, and the ceilings are overlaid with acoustic tile. The floors in the classrooms and the gymnasium are of maple, and the walls are plastered. In the library, the home-economics laboratories, and the various lounges and rest rooms, the floors are covered with asphalt tile. The ceilings throughout have been treated with acoustic tile to cut down unnecessary noises. Fluorescent lights are used generally, and Venetian blinds are hung at all classroom windows.

The building contains 24 academic classrooms; a woodshop; a drafting room; foods, clothing, and science laboratories; an art room; a visual-education room; two music rooms; a library; a cafeteria; an auditorium; and a gymnasium.

Since the program of study in the junior high school calls for exploratory courses in manual arts and home economics, the rooms for these subjects are equipped to give the pupil sufficient knowledge and experience so that he can decide whether or not to pursue the work further in high school. The wood- and metal shop have complete equipment to



The Charles D. Evans Junior High School, Ottumwa, Iowa — Karl Keffer Associates, Architects, Des Moines

allow the students to undertake various projects in these fields. Mechanical drawing is required of all ninth-grade boys, who intend to take up manual arts in the high school, and the drafting room is equipped for a full year of work. For the girls, the foods and clothing laboratories are equipped with the latest facilities. There are six completely equipped unit kitchens, each accommodating four girls. In addition, there is a complete dining room for teaching the arts of table setting and serving of meals. The clothing laboratory is equipped with the latest machines and sewing tables. A storage room contains sufficient drawers so that each girl has a tote box of her own which fits into the sewing table when she is in class. This bank of drawers contains individual locks so that each girl's equipment is her private property.

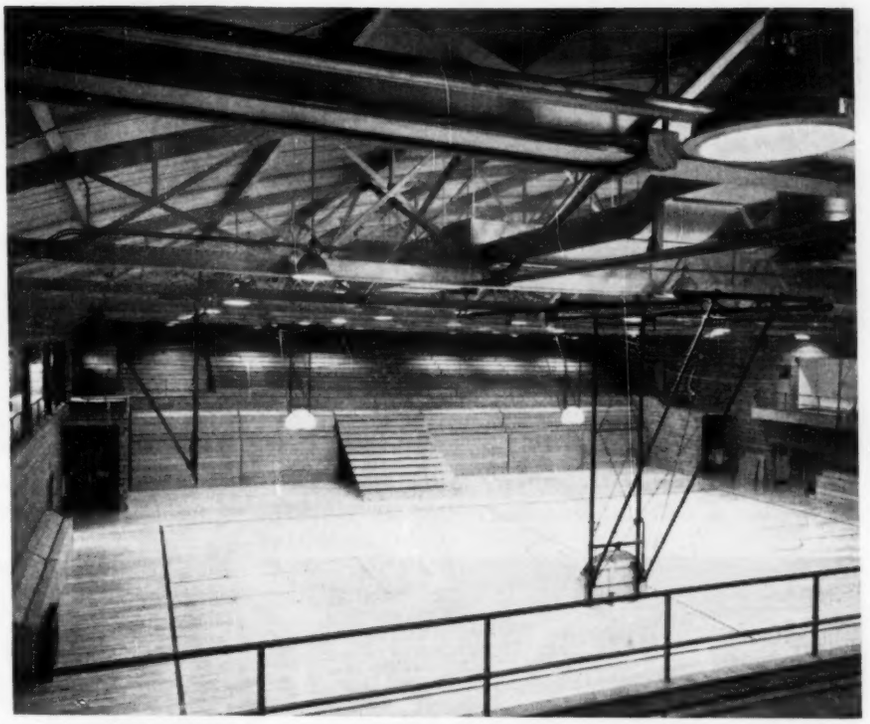
The art room is equipped with formica-topped tables and all the equipment needed for art education, including ceramics and pottery. Two music rooms are behind the stage. There are two reasons for placing them in this location: (1) The rooms are separated from the rest of the building so that no sounds escape to the other rooms. (2) The rooms can be used for additional dressing-room space for the stage. Both the vocal and instrumental rooms have semicircular built-in risers so that the instructor is in the center of his group.

The library is a combination study hall and library. It has, in connection with it, a stack room where most of the books are kept. Tables and chairs accommodate up to 100 pupils, and since the school has a program of supervised study, this is ample space for study hall purposes. In fact, most periods are devoted exclusively to library use.

The cafeteria which seats 250 pupils is the only room on the basement level, situated behind and below the auditorium from which noises and odors will not penetrate the rest of the building. The kitchen is equipped with the latest facilities in stoves, ovens, refrigerators, dishwashers, and other equipment to feed 750 pupils.

The building was planned for a maximum of 850 pupils. The auditorium, with separate entrance, is at one end of the structure. It is equipped with 860 opera chairs and can be completely shut off from the rest of the school. This is a valuable feature whenever the building is opened to outside organizations, either in the daytime or in the evening. There are no windows in the auditorium so that it can be used for visual education on a moment's notice. The stage is completely equipped with a cyclorama, a front curtain, drop curtains, and several stage sets. The speech room has a small raised platform equipped with curtains, and can be used for one-act plays and other speech activities.

Ottumwa is a city very much interested in athletics. For a number of years a group of citizens attempted unsuccessfully to float bond issues to build a municipal gymnasium large enough to handle the crowds desiring to go to the basketball games. When the board of education considered building the junior high school, this same group asked that the gymnasium be planned so that large crowds of spectators could be accommodated. The board found that by spending an additional $145,000, the size of the gymnasium could be increased so that approximately 4500 persons could be accommodated. This was done. The gymnasium measures approximately 108 feet square. Folding bleachers have been erected on the four sides of the room and on the two balconies. When the building is used for public gatherings such as commencement, and chairs are placed on the floor, as many as 5000 people can be accommodated.



Folding bleachers on four walls and two balconies provide seating for approximately 4500–5000 spectators in the large gymnasium.

The orchestra pit and well-equipped stage are easily seen from the auditorium balcony. Planned also for community use, the auditorium has a separate outside entrance and can be shut off from the remainder of the school.

An electrically operated partition divides the gymnasium into two equal parts so that separate boys' and girls' classes can be accommodated at the same time. In addition, when all the folding bleachers are pushed back, eight or ten table-tennis tables can be used on one balcony and the same number of

Left: *A view of the entrance to the gymnasium, showing the front lobby and ticket windows.* **Right:** *The vocal music room is furnished with permanent risers.*

Left: *The foods laboratory contains equipment for six complete kitchens.* **Right:** *One of the three science laboratories.*

shuffleboard courts on the other. The ceiling of the gymnasium is acoustic tile so that public meetings can be held without the echo usually found in buildings of this size. Since its opening, the gymnasium has been filled at every basketball game.

All the rooms in the building are connected by means of an intercommunicating telephone system. The offices are equipped for both administrative purposes and for counseling.

The grounds on which the building is located are ample. At one end of the building there is a large hard-surfaced parking area. There is also a regulation size football field, and two baseball fields. Although the location seemed at the time it was purchased to be at the edge of the city, at the present it is close to the center of population of South Ottuma. The final cost was $1,203,000, or $12.13 per square foot. After a full year's use of the building, we feel it very adequately meets all the needs of a modern junior high school.

DEDICATE HIGH SCHOOL

The Washington building housing the Vinton Consolidated High School at Vinton, Iowa, was dedicated November 9. The building which cost $694,775, contains 69,400 square feet of floor space, and accommodates 500 to 600 students. It provides space for a dining room and kitchen, a library-study hall, a kitchen-laboratory with six units, industrial arts and agriculture shops, a band room, a business training unit, a student lounge, and an auditorium-gymnasium.

DEDICATE JUNIOR HIGH

The school board of Dearborn, Mich., recently conducted a dedication program for the new O. L. Smith Junior High School. Plans for the building were completed in the year 1952 and the building was occupied for the first time in November, 1954.

The O. L. Smith School is a one-story, functionally planned structure, arranged on a long axis, with separate wings for the different subject areas.

LONG-RANGE PROGRAM

The board of education of Pittsburgh, Pa., has approved a new long-range building program for modernizing the school plant. A $5,000,000 bond issue, approved in the fall of 1954, will provide funds for new school buildings at four schools, an addition, new playgrounds, and alterations at two schools. The new Sunnyside School was completed and occupied in September.

NEW YORK PLANS

New York, N. Y. Teachers, parents, and pupils will have a voice in planning new schools to be built in the future. Supt. William Jansen has established a new committee on plant building, to be headed by Dr. Morris Nelson Sachs of the Division of Schoolhousing. The new committee will seek to redefine policies with the aim of constructing better schools and improving the modernization programs in existing buildings. Specialists on the board's staff will join with the teacher and laymen's representatives in planning new schools.

PROVIDE NEW FACILITIES

The board of education of South Euclid-Lyndhurst, a suburb of Cleveland, Ohio, has issued a brochure telling about its classroom and operating needs. The booklet describes the growth of the schools over a ten-year period, the anticipated enrollment from 1954 to 1958, the critical needs for an expanding teen-age population, and the rising school costs due to increased salaries and other costs.

To meet these critical needs, the board has called an election to provide (1) additional classrooms and (2) an increase in the operating levy from 7 mills to 9.8 mills. The new levy is essential to provide a bare minimum budget.

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DAVID M. ELLINWOOD
New York, N. Y.

As Archie, the headwaiter of Duffy's Tavern, is wont to say: "Leave us face it." Times do change. And, as often as not, we are smart to change with them.

In pioneer days school buildings were speedily thrown together in a holiday atmosphere. The menfolk of a community, having voted for a new school in town or school meeting, got together on an appointed day. Someone furnished a few brick, another the nails. Probably the windows and frames were bought with tax money. As often as otherwise, the lumber was contributed by the local sawmill. All the labor was volunteer. The ladies supplied doughnuts, pie, coffee, cider in season, and so on.

Time passed, and as our cities developed their civic prides, more schools were built. Sure, as cities grew in size, kids were more numerous. Also, they needed and they deserved bigger and better buildings in which to spend their school days. We need neither to belabor nor to argue that matter. Gradually, one by one, the buildings got built. And, particularly as we got further and further into the twentieth century and as it became easier and easier (except for temporary circumstances) to raise building funds by the sale of bonds, a companion circumstance arose. More and more of the schools built were not just educational factories, they were also monuments dedicated to the glorification of the architects, the superintendents, and the members of the boards of education.

Times continue to change. And every one of us is only too familiar with the awful truth that building costs have more than doubled since 1946. Teachers' salaries and other school current expenses have increased sharply too, no doubt justifiedly. But the school system is rare indeed that has been able to keep abreast of rising costs without increasing the tax load on its community.

Savings on Building and Bond Costs

Something has had to be done. And, to the credit of some school architects and some school administrators in every section of the country, something is being done. We are not concerned here with controls imposed on the costs of administration, instruction, and other current operating expenses. It is our purpose here to direct your attention to the tax dollars which can be saved year after year if you have a building program in mind and will be having bonds to sell.

These savings are made possible in two ways: by borrowing less (thus you pay back less to the lenders) and by making better (for you) deals with the lenders. As I said above, these problems are being tackled in particular communities all over the country.

In the first place, because school boards are unwilling or unable to raise the price for new schools of "classic" design, architects just about all over the country have, within the past two or three years, come up with increasing frequency with simpler, more functional designs. Lower buildings (less structural steel), more cinder block (less marble) and so on have helped enormously to keep construction costs — and resulting bond isses — within reason.

But I am not an architect and I am not trying to plug any one school of design. What I hope to show you is how you can save tax dollars by arranging a better deal when next you have bonds to sell. And I hope for your sake that your next borrowing is not scheduled for next week. These things take time, as you will see as you read on.

How Bond Prices Are Determined

The price you can fetch for your bonds (the upside down way of saying how low an interest rate you will have to pay on the bonds) depends upon a combination of many things. Some of these are beyond your control and influence. For example, the amount of money in the hands of commercial banks, savings institutions, insurance companies, pension funds, individuals, and other classes of investors — the money available for the purchase of your bonds — depends in part upon the flow of free funds in the hands of these investors, and in part on your competition (i.e., the extent to which prospective home owners are looking for mortgage money; the extent to which businessmen wish to raise capital to put into inventories, to extend credit to their customers or to expand their plants, and the extent to which other governmental units, like your district, want to borrow money for one reason or another).

You have heard about the law of supply and demand? It has not been repealed. There is nothing you can do about it to the extent that this "law" governs bond prices and interest rates in an over-all way. But there is a lot you can do about it by way of influencing the value and the interest rate of *your* bonds in relation to the value of *other* bonds.

You, and you alone, govern the supply of bonds bearing your school system's name. It can be argued, of course, that the need for schools, not you and your administrative actions, dictates the supply. However you assess the blame, it cannot be denied that you exercise some control over the supply. Simple, isn't it? Much more complicated, but even more meaningful, you can influence the demand factor by whetting investors' appetites for *your* bonds over other securities.

The value of your bonds (in relation to other bonds) is determined by the size of your market. This, the size of your market, means the quantity of your bonds investors are willing to buy at a price. In turn, this is determined by how widely and how favorably you are known; in other words, by the length and breadth of your credit.

Bond Ratings Explained

Before I get into a discussion of credit and the manner in which bond qualities are determined, perhaps it would be well that I introduce myself. I work for Moody's Investors Service. If you have debt outstanding, no doubt we have requested information from you from time to time. We gather financial and economic statistics from state and local governments, cities, school districts, and the like, from all over the country. This information is consolidated and analyzed; credit reports are prepared; condensed

versions of data are published and distributed to our customers. On larger situations we express our opinion of bond quality in the form of a letter rating.

Because I represent a rating agency, and because experience shows that there are many misconceptions about the nature of ratings, I should like to take a moment to explain them. It must be clearly understood that everything I say about ratings refers to Moody's ratings, for I have no firsthand knowledge about other rating systems.

Moody's bond ratings were designed and are still made solely to provide a broad gauge indicator of independent opinion regarding the investment quality or safety of bonds. These are divided into purposely broadly defined gradations. The letter symbols in our system are "Aaa," "Aa," "A," "Baa," "Ba," "B," "Caa," "Ca," and "C." The effect would be much the same if we were to use adjectives such as Good, Fair, Poor, and so on.

There are only nine classes in our rating system. About 98 per cent of all school bonds receive one of the four top grades. In rating several thousand bond issues with so few symbols, it follows that ratings cannot reflect the fine shadings of risk which actually occur. This is deliberate on our part. Bonds carrying the same rating are not claimed to be of absolutely equal quality, but we believe they are essentially alike in investment characteristics.

Principles Used in Ratings

Our ratings are not the product of any statistical formula wherein past and present debt relationships, revenue and expenditure records, and so on alone are taken into account. Naturally, such material is used in our credit studies, but we take into account also numerous economic and other nonfinancial factors. Management, as revealed by the fiscal record over a long period of time, is given considerable weight; we are not concerned with incumbent office holders alone, but rather by the caliber of the job done, year in and year out, by the office holders which the community insists upon selecting.

Our ratings represent a judgment about the probable future performance of bonds over the long term. To us, "long term" means: as far ahead as the practical imagination will permit and in any case long enough to span a business recession of some severity. A conscientious effort is made to keep our ratings from being mere expressions of fair weather risks or even of average weather risks. We make use of historical data but it is in the future, not the past, that presently outstanding bonds will be paid. Thus, in our appraisal of long-term risks, among other things we consider economic, social, and political trends and tendencies. Particular consideration is given to the possible capital needs and revenue requirements as well of all governmental units imposing both direct and indirect taxes on the business life of a single community.

The ratings are reviewed periodically. Being made as they are, our ratings do not change in reflection of annual or sometimes even of decennial changes in the current financial standing of a community. The ratings are revised only as we become convinced that long term risks are increasing or waning.

How Ratings Can Help You

No fee is asked of, nor accepted from the city or school district whose bonds are rated by Moody's. Our income is derived exclusively from charges to investors who use the ratings and our other services. We do, however, impose on the community whose bonds are rated the moral obligation to supply us from time to time with such financial and related information as we require to review the rating and to keep it thoroughly in accord with changing circumstances.

Under this method of financing our business, it is vitally necessary to limit the number of issues which we will undertake to rate. In line with this finding, ratings are assigned to the obligations of only those school districts and other borrowers whose bonded indebtedness exceeds $600,000.

If your debt exceeds this minimum it will pay you to see that your bonds are rated. It is unfortunate but true that investors pay a lower price for unrated bonds than they are willing to pay for rated securities of equivalent safety. So many investors have come to rely on ratings as a guide in bond selection that rated bonds, as a group, enjoy much wider marketability than unrated bonds, as a group. It is true that there are several prominent bond issues (e.g. — multimillion dollar turnpike bonds) which are widely held for investors and are actively traded although they are not rated pending the completion of construction and the development of actual earnings experience. But as regards school bonds, unrated bonds typically can be sold only in the vicinity of the issuing school district, to investors who know the area; rated school bonds, on the other hand, frequently are purchased, simply on the basis of the rating, by investors far away, who know nothing of the area. Thus, having a rating tends to increase the demand for bonds. In turn, increased demand tends to better the price; stated another way, increased demand reduces the interest rate which you are required to pay.

Credit Factors: 1. The Weight of Debt

A good credit is based on the happy combination of a modest debt and either governmental facilities which are adequate for present and prospective needs or the assured ability to furnish adequate facilities as they become needed. If debt is high, credit is likely to be poor. Even if debt is low, credit is not apt to be high where a community is faced with a grossly inadequate plant or badly deteriorated facilities; either of these is indicative of much debt to be incurred in the future.

It is generally agreed that the amount of debt a community can safely carry depends upon its will to pay (sometimes referred to as its good faith) and upon its resources (its ability to pay). The good faith of a community is not subject to measurement, even though it is observable upon rare occasions. On the other hand, there are four common ways by which debt is related to resources. We compare debt to the value of property subject to taxation, we compare debt to governmental revenue, we compare debt service to the revenue receipts of the borrower, and we compare debt to community income. These comparisons produce ratios which are useful tools. They help us to decide whether the present debt of a community is within prudent limits, and if within, how far within? But we do not stop there; by looking carefully at the practical circumstances we take into account possible future changes in the debt structure.

Credit Factors: 2. Ability to Pay

As indicated above, we consider debt and fixed charges in relation to ability to pay. If you were studying the bonds issued by a business corporation, you would be concerned with the size of funds remaining after the payment of current expenses and available for the payment of debt. In public finance, on the other hand, the protective element behind the bonds is derived not from the amount of money provided in the annual budget for the payment of bond principal and interest so much as from the unused taxing powers of the school system. Thus, attention is directed to the powers legally available to add new taxes or to increase tax rates in case of need.

On the other hand, "ability to pay" is mostly an economic concept. To understand it, investors learn all they can about your community. Are your industries growing or waning? Are they steady employers at good wages, or do they offer a feast-or-famine existence? How extensive is your retail trade area? How about the size and reliability of farm cash income? Are you susceptible to drouth hazards? As you may realize, there is a world of Bureau-of-the-Census, Chamber-of-Commerce, and miscellaneous material to be drawn upon as we search for the answers to these questions.

Credit Factors: 3. Management

In public affairs, voters are prone to change their elected heads

(Continued on page 102)

above the floor so wall space can be used for shop equipment.

space should be adequate in size, fit the shop flexibility pattern, be convenient in

shops particularly shop storage, flexibility, shop ventilation, and shop lighting

For Educational Effectiveness —

Essential Construction Features of School Shops

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There are many aspects of building construction which make for effectiveness in the operation of school shops — items the architect should keep in mind when buildings are being planned. In an attempt to be specific, this article is limited to construction features of the school building, and does not deal with shop equipment and its layout.

Before planning the specific details of the various shops, one must decide what curricular areas shall be represented to achieve the objectives for which the school is striving. The choice of shops to carry out the curriculum must be made. How shall these shops be organized? Shall the work be taught in one shop, rather comprehensive in nature, or in two or more shops, more specialized in organization?

One should utilize various sources of help in planning the shop construction details: teacher, teacher committees, state department of education consultants, and college industrial education departments. In addition, assistance can be obtained through school visitation and the various writings pertinent to shop construction.

In this study the shop construction details are divided into seven sections: some general aspects, structural considerations, heating and ventilating, visual comfort and efficiency, general utility services, shop storage facilities, and shop instructional facilities.

How Many Stories?

Some general aspects. If it is a separate building, the ideal school shop structure is one story in height. However, if it is multistory, give ground floor priority to heavy shops or those requiring outdoor entrances because of type of work or delivery of equipment and supplies. Locate noisy shops so they are the least disturbing to the remainder of the building. Shops should preferably be on one level and free of interfering posts. Locate machinery so that production will be expedited without interference from other machines, pupils, or the building structure. In addition, locate machines with respect to an efficient and economical arrangement of service utilities and effective utilization of light.

Structural considerations. Determine the size of both day and night school classes and the number of teachers necessary. The shop should be of adequate size for the work concerned with the best room dimensional ratio being one to one and one-half. The shape of the shop should be such that the teacher can supervise it and auxiliary rooms easily. If the shop is unilaterally lighted, the width should not exceed twice the height of the room, but by using bilateral light, the shop can be made wider. If desirable, include one or more of the following auxiliary rooms: day school storage, night school storage, day school toolroom, night school toolroom, finishing room, instructor's office, and related workroom.

Shop construction should meet specific work needs, yet be as flexible as possible. Flexibility can be achieved by foreseeing future shop needs. Extend halls in shop wings to outside walls, make partitions nonload bearing, put services on the outside of partitions rather than in them. In addition, the type of utility distribution should facilitate flexibility.

Select floors for specific shop purposes. They should be nonslipping, oil resistant, fire resistant, dent resistant, comfortable, and economical to install, service, and repair. Consider which floor material will be affected least by moisture, humidity, temperature, and hot metals. Floors should not transmit noise to the rest of the building. In laying floors, the installation of various utilities must be considered as well as the reflectance value of the floor surface.

Consider two factors in treating shop acoustics: noise reduction (nontransmission of noise) and acoustical correction (proper diffusion of sound within the shop). Treat noise reduction through strategic location of the shop with respect to noise levels that can be tolerated in the various rooms. Consider such factors as windows, floors, exhaust systems, room vents, and machinery noise transmitted through the structure. To secure satisfactory acoustical correction, select proved wall and ceiling materials.

Walls, partitions, and ceilings should be of appropriate materials for the shop concerned and should also be pleasing in appearance, light in color, economical in construction and should possess essential acoustical qualities. Ceiling height should fit the needs of shop activity but should not be less than 12 feet. Include clear shop space for assembly of jobs, if needed.

Install at least two doors in each shop, giving serious thought to size, type, and location. In selecting size, type, and location of doors, consider pupil passage, type of shop work, and delivery of supplies.

Heating and ventilating. Install a system which will maintain a satisfactory thermal condition and provide circulation of air to conform with established health standards. In addition to being simple to operate and service, the system selected should prevent recirculation of shop fumes and dust through the building. Locate radiators of a recommended type and size so they interfere least with work being done. Radiators should provide a comfortable yet healthful temperature and recirculation of air without draft.

Install special shop ventilation where necessary to remove dust and fumes without interference with the general ventilation system.

Lighting Requirements

Visual comfort and efficiency. Orient the building on the site so that shops will get appropriate natural light remembering that west and south windows admit most light and heat. While outside objects causing glare should be avoided, adjacent buildings or wings should not block natural light.

Select a type of window system which will insure adequate natural light in all portions of the shop, lend itself to the school flexibility pattern, fit the ventilation design, and be economical to install. Windows should be easy for pupils to operate. The ratio of window area to floor area should meet code requirements, which usually are about 20 per cent. Bilateral lighting will permit shops to be wider. Install window shields, shades, or glass block to secure maximum glare-free light, provide standard room brightness ratios, and control radiant heat. Extend windows to within four inches of the ceiling to secure maximum light but make possible installation of audio-visual darkening devices. Window sills should be 42 to 48 inches

above the floor so wall space can be used for shop equipment.

The artificial lighting system should provide economical, glare-free light of required intensity and general brightness ratios in the various shop working positions. The artificial lighting system should supplement natural lighting when necessary, yet be capable of providing adequate lighting in the total absence of natural light. To do this, supplementary lighting may be necessary in certain shop locations. Install lighting switches at principal entrance to shop so inner circuits can be separately switched.

Wall and ceiling color should be of a light, nonglare finish to produce acceptable room lighting contrasts. In addition, the color should be psychologically agreeable.

Have Enough Outlets

General utility service. Equip the shop with an adequate number of 110–120 volt utility outlets, correctly located. In certain instances lock-type outlets should be provided, and in others, three-wire grounded outlets. Utility outlets serving heating equipment should be pilot lighted. Test voltages should be made available where necessary. A careful prior analysis of the equipment to be installed should determine the connected power load. From this, panel and wire size can be determined. Deadfront panels with adequate future capacity should be used, equipped with circuit breakers. Certain shops should be equipped with master remote control emergency switches. The method of running conduit and other utility services should fit the type of shop. In addition, consider the factor of expense, appearance, and the general flexibility pattern.

Motors selected for machine operation should be economical and efficient in operation. The installation should provide for safe, quiet operation.

Install adequate pupil hand washing facilities directly in the shop where they can be teacher supervised. Provide other water services in accordance with specific shop needs. In addition to drinking fountain installation within the shop, the necessary steam, toilet, and drainage facilities should be provided.

Install air, gas, and vacuum cleaner systems depending upon shop needs. Provide school telephones, clocks, and class bells. Equip noisy shops with school fire alarm gongs and certain shops with fire alarm sending stations. The proper number, type, and size of fire extinguishers should be provided in the correct locations. Shops using open flames should be equipped with safety blankets. In certain shops or shop locations, it may be desirable to install automatic sprinklers. Hazardous inflammable materials should be safely stored, and explosion proof electrical fixtures located in such storage space.

Shop storage facilities. Shop storage space should be adequate in size, fit the shop flexibility pattern, be convenient in location, and economically provide specific space for the variety of specific storage problems. Night school storage should be considered. Shop storage space may be located in the shop or department. A school storage room may be utilized.

Tool Storage

The method for storing tools should fit shop needs. Choice can be made among toolcribs, open tool panels, or panel cabinets. Specific tools may be stored near the machines for which they will be used. It should be convenient to move materials from delivery trucks into the storage room, and thence into the shop. Some shops will need access directly outdoors while others, in multi-story buildings, can be supplied through school loading docks and elevators.

If pupil clothing and job lockers are needed, they should be installed in convenient locations.

Shop instructional facilities. Locate the lecture-planning area with filing cabinets and bookcases directly in the shop or auxiliary room depending upon the activity. Provide chalk boards and bulletin boards where best use will be made of them, and, if desirable, bulletin display cases.

Provide audio-visual projection facilities, especially in those shops where related instruction favors this method of presentation. Shops or auxiliary rooms should be equipped for darkening and provided with permanent screen and adequate power and sound installation. All elements in the projection area should be carefully positioned.

There is need for future study of the essential construction features of school shops particularly shop storage, flexibility, shop ventilation, and shop lighting.

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tal disorders or other employment handicaps that stem from accident, disease, or congenital causes, including housewives

preferences and highest physical and mental capacities — *a free service.*

9. Follow-up after placement to make

What New Law Provides

The new law authorizes 30 millian dol-

Word From Washington

At the Threshold of a New Era in Washington

ELAINE EXTON

A resolution recently adopted by the board of directors of the Council of Chief State School Officers urges that (1) state administration of vocational rehabilitation should be a responsibility of the state agencies for education and (2) that all chief state school officers should co-operate fully with the new program in vocational rehabilitation and should vigorously seek more adequate state funds for vocational rehabilitation from state legislatures.

This action followed a conference between Miss Mary E. Switzer, director of the Office of Vocational Rehabilitation of the U. S. Department of Health, Education, and Welfare, U. S. Commissioner of Education Samuel M. Brownell, and Council board members to consider ways to implement the new Vocational Rehabilitation Law (Public Law 565) which presents the double challenge of an expanded program and a provision which for the first time makes optional whether rehabilitation activities at the state level should continue to be administered by the State Board for Vocational Education or by another agency "primarily concerned with vocational rehabilitation."[1]

Historical Perspective

Historically the federal-state rehabilitation program began under educational auspices, but because of broadened concepts adopted through the years, its activities now cut across many professional fields and departments of government, for example, health, welfare, education, and employment, each of which is concerned with a vital aspect of total rehabilitation.

Since the basic intent of the rehabilitation program initiated in 1920 under the provisions of the Smith-Fess Bill (Public Law 236, 66th Congress) was one of providing vocational training to persons with *physical* impairments to give them skills so they could work with their disability, responsibility for its administration at the federal level was lodged with the Federal Board for Vocational Education. In 1933 when this Board was abolished, its vocational rehabilitation function as well as other duties were placed in the U. S. Office of Education.

As early as 1921 literature of the Federal Board for Vocational Education spoke of the need for physical restoration services since without such aid it was necessary to "train around" the disabilities of the persons served and prepare them for different work than they had formerly performed. Other developments since the 1920's have also tended to enlarge the scope of the vocational rehabilitation program and carry it beyond the specific interests of vocational education.

To mention two developments; psychologists and social workers were increasingly brought into the picture as aptitude testing, case work, and other services in these fields gained acceptance and were increasingly called on for help in the total planning for rehabilitation of those disabled. Employment officers were increasingly drawn in after the passage of the Wagner Peyser Act of 1934 which made possible a nationwide public employment system in which there soon developed a program of selective placement whereby the qualifications of the worker were matched to the physical requirements of the job.

The concept finally took hold that medical services to remove or modify physical impairments so as to widen the range of employment opportunities open to handicapped individuals and permit them greater freedom of occupational choice is an essential ingredient of vocational rehabilitation.

This view obtained legislative sanction in 1943 with the passage of the Barden-LaFollette Act (Public Law 113, 78th Congress) which authorized federal grants to the states on a 50-50 basis to provide medical services to reduce or correct a *physical or mental* handicap, thus making it possible for the vocational rehabilitation agency to concentrate on a person's vocational abilities rather than his disabilities in shaping job objectives. Other significant provisions in this legislation extended the program's services to the *mentally and emotionally ill*, empowered the Federal government to assume state administrative costs and the expense of counseling and placement activities.

In recognition of these factors in 1943 by presidential order vocational rehabilitation was set up as a separate office of the Federal Security Agency, which on April 11, 1953, became the U. S. Department of Health, Education, and Welfare.

The importance of the responsibilities of this Office were recently highlighted by the enactment of the Vocational Rehabilitation Amendments of 1954 (Public Law 565, 83rd Congress) whose effect as described by the national rehabilitation director, Miss Mary E. Switzer, is "to lift the program from its former status as a subdivision of vocational education and endow it with stature as an important part of the nation's health resources in its own right."

Tasks for the Schools

Whether or not the administration of the vocational rehabilitation program remains under the State Department of Education or is finally lodged elsewhere, the utilization of its vocational counseling, medical, training, and employment services to help disabled young persons approaching working age to find and fill a useful role in society poses a continuing challenge to local school administrators.

In the federal fiscal year 1953, 17 per cent — about 10,000 — of the 61,308 disabled persons rehabilitated under this program were under the age of 20. Stressing that much of the ultimate success of the nation's efforts to help handicapped children become happy and successful adults depends upon how much continuity is achieved during the important years of transition from childhood to young adulthood, Mary E. Switzer, the National Director of Vocational Rehabilitation, recently stated that much of this program's work is devoted to those in their middle and late teens, since those who are of or near working age may be served, providing their handicap presents no obstacle to employment.

To obtain the advantages of this service for members of their student body who would benefit from it, school officials can contact the vocational rehabilitation counselor in their area so that he can work out a rehabilitation plan in co-operation with each eligible youth and the school authorities. The counselor's name and address may be secured from the state vocational rehabilitation agency.

For the first time the new law makes it possible for an agency at the local level, such as a board of education, or other appropriate public agency, to operate a public vocational rehabilitation program under state supervision, using its own funds as well as state and federal appropriations to meet community needs. Up to now such activities have been administered by the state agency for vocational rehabilitation.

The Program in Brief

The deaf and hard of hearing, the blind, the orthopedically crippled, the cerebrally palsied, the epileptic, the tubercular, the cardiac persons suffering emotional or men-

[1]The cited provisions of Public Law 565 regarding administration of the vocational rehabilitation program at the state level do not pertain to rehabilitation services for the blind, which in 36 of the states and in Hawaii are handled by separate agencies that are components of the State Departments of Public Welfare.

tal disorders or other employment handicaps that stem from accident, disease, or congenital causes, including housewives with impairments that impede effective homemaking, are eligible for aid from the federal-state vocational rehabilitation program. The law requires that the persons served be of employable age. However, training programs may be begun for disabled young people as early as age 15 when their need for such help is apparent.

The range of services on which disabled Americans can draw for assistance in obtaining remunerative employment include:

1. A free medical examination to determine the extent of the person's disabilty and work capacities as well as his or her eligibility for rehabilitation aid.

2. Individual counseling and guidance, including psychological testing, to help the disabled citizen select and attain the right job objective — *at no cost to him.*

3. Medical, surgical, psychiatric, and hospital care as needed to remove or reduce the disability. Public funds *may* be used to pay all or any part of these costs. *The client is expected to pay what he can.*

4. Prosthetic appliances such as glasses, hearing aids, artificial limbs, braces, etc., to increase the person's ability to work. These *may* be paid for with public funds if necessary. *The disabled individual pays what his resources permit.*

5. Training for the right job in schools, colleges, or universities; on-the-job; by tutor; through correspondence courses; or otherwise — *usually without cost to the disabled.*

6. In some cases maintenance and transportation is provided during treatment or training if needed.

7. Occupational licenses, tools, and equipment when needed to start the client at his selected vocation. *These are financed with public funds to the extent that the individual is unable to pay for them.*

8. Placement in a job as commensurate as possible with the person's preferences and highest physical and mental capacities — *a free service.*

9. Follow-up after placement to make sure that the person restored to useful work is performing successfully on the job and that both he and his employer are satisfied.

President's Rehabilitation Goals

Upon recommendation of President Eisenhower, who reported that "250,000 of our people are annually disabled (and) there are now 2,000,000 disabled persons who could be rehabilitated and thus returned to productive work," the 83rd Congress enacted legislation providing for expansion of the nation's rehabilitation resources.

Public Law 565, with state and federal appropriations, should make possible attaining the rehabilitation goals set by the President in his Health Massage to Congress, January 18, 1954, when he said that by 1959, with increasing state participation, our nation should reach the goal of 200,000 rehabilitated persons each year — or a total of 660,000 in the next five years.

To achieve these objectives, he continued: "We must extend greater assistance to the states. We should do so, however, in a way which will equitably and gradually transfer increasing responsibilities to the states. A program of grants should be undertaken to provide, under state auspices, specialized training for the professional personnel necessary to carry out the expanded program and to foster that research which will advance our knowledge of the ways of overcoming handicapping conditions.

"We should also provide, under state auspices, clinical facilities for rehabilitation services in hopsitals and other appropriate treatment centers. In addition, we should encourage state and local initiative in the development of community rehabilitation centers and special workshops for the disabled."

President Dwight Eistenhower signing the Vocational Rehabilitation Law. Seated with him are Secretary Hobby and Senator H. Alexander Smith.

What New Law Provides

The new law authorizes 30 millian dollars for grants to the states for vocational rehabilitation during the current fiscal year (1955) and progressive increases to 45 million dollars in 1956, 55 million dollars in 1957, 65 million dollars in 1958, and for each fiscal year thereafter such sums as Congress may determine. Based on current average cost figures per person rehabilitated, about 127 million dollars in federal and state funds would be needed in 1959 to meet the national goal of rehabilitating 200,000 disabled persons annually.

Congress voted a total of $27,900,000 for vocational rehabilitation for the current fiscal year (ending June 30, 1955), almost 5 million dollars more than for the past one. For the first time $900,000 of these funds are available for training needed professional personnel. The terms of the enabling act, however, limit the Federal Government's share in financing such instruction for any individual to a two-year period for any one course.

All of $500,000 may be spent on grants to colleges and other institutions for teaching specialists, the formula being two federal dollars for each state or institution dollar. An additional $400,000 may be used for granting traineeships in such needed vocational rehabilitation disciplines as physical therapy, occupational therapy, social work, and counseling. In the case of these scholarships the Federal Government has authority to pay the full cost so no matching funds are necessary.

The remaining $27,000,000 was appropriated to sustain the new three-part grant structure created by Public Law 565, as follows: $24,500,000 to the states for basic *support* grants, $1,500,000 for *extension and improvement*, and $1,000,000 for *special project* grants. The *expansion, remodeling, or alteration of existing buildings*, including initial equipment to make them suitable for rehabilitation facilities or workshops, may be undertaken under all three types of grants.

The *support* grants which are intended to meet the costs of basic vocational rehabilitation services are to be calculated on the basis of relative population weighted by per capita income of the states — a variable grant formula of the type found in the Hill-Burton Hospital Survey and Construction Act. Provision is made for a permanent floor or base allotment so as to guarantee at least minimum programs at current levels.[2]

[2]To earn its base allotment through 1959, a state's annual investment must equal its 1954 contribution. The excess of the total support allotment over this base allotment is earned under a variable matching formula providing for a 60 per cent pivotal federal share and maximum and minimum federal shares of 70 per cent and 50 per cent respectively. (For example, a state with a per capita income equal to the U. S. average would have a federal share of 60 per cent — the pivot — while a low per capita income state, like Mississippi, would be entitled to the maximum federal share of 70 per cent and a high per capita income state, like Delaware, would be entitled to the minimum federal share of 50 per cent). In 1960, 1961, and 1962 the matching for the base allotment will be adjusted so that by 1963 the entire support allotment will be earned on the basis of the 60 per cent pivot federal share and the maximum and minimum shares of 70 per cent and 50 per cent respectively.

not been placed in useful occupations before the effects of disability and enforced idleness had exhausted their resources.

Extension and improvement grants to assist the states in meeting the costs of adding to and improving their vocational rehabilitation services are to be allotted on the basis of relative state population, with a minimum allotment of $5,000 to any state. The federal share is 75 per cent for three years on any one project.

Special project grants are to assist states, localities, and nonprofit organizations and agencies in meeting special rehabilitation needs and problems.[3] The new law creates a 12-member National Advisory Council on Vocational Rehabilitation to be appointed by the Secretary of Health, Education, and Welfare, and chaired by the Secretary or her designee, whose duties are to review applications for special projects and make recommendations regarding grants of this type.

Related Measures

A second approach to overcoming the existing dearth of rehabilitation facilities is contained in the Medical Facilities Survey and Construction Act adopted last summer public vocational rehabilitation program *construction of comprehensive rehabilitation facilities* to serve thousands more disabled persons annually as well as for chronic disease hospitals, nursing homes, and diagnostic and treatment centers. It is considered this development will have a particularly advantageous effect on the public vocational rehabilitation program since 88 per cent of the disabled persons in need of rehabilitation have become incapacitated by chronic illness.

Two new amendments to the Social Security Law are also of significance to vocational rehabilitation. One extends coverage under the old-age and survivors insurance system to 10 million additional workers, the other preserves the benefit rights of disabled wage earners during their period of incapacity through having their earnings record "frozen" while they are unable to work. A leaflet, *Facts for Those Who Are Disabled,* telling whom the 1954 Amendments to the Social Security Law protect and how they affect them can be obtained without cost from the nearest district office of the Social Security Administration.

Values — Tangible and Otherwise

As an investment in human welfare, vocational rehabilitation is an activity of demonstrated economic and social value to the nation. Consider, for example, these achievement high lights of the fiscal year 1953, the latest for which such figures are obtainable.

About 222,000 handicapped men and women received rehabilitation services in fiscal 1953. Of this number 61,308 were fully rehabilitated and restored to productive employment. Their median age when accepted for rehabilitation was 34.

After rehabilitation their combined earnings totalled an estimated 114 million dollars annually as compared with yearly earnings of 17 million dollars at the time they became clients of the program — an increase of more than 500 per cent.

[3]While Public Law 565 does not fix the federal share of special project grants, the Supplemental Appropriations Act of 1955 limits federal participation in them to two dollars for each dollar expended by the grantee or the grantee and the state.

John B. McAulay (right), industrial specialist of the Office of Vocational Rehabilitation, who is blind, shows Lyman J. Laughton, machine shop instructor at the Bell Vocational School, the problems of teaching a blind man how to run a lathe. The hands of the two men are on a "point of safe contact," to which the blind worker relates his other moves.

These disabled citizens have, moreover, added an estimated 100 million man-hours a year to the nation's productive effort. Many have, in fact, acquired new skills that are in short supply and are considered important to America's preparedness effort.

More than 8000 of these rehabilitated wage earners have become skilled workers, e.g., carpenters, machinists, welders, dressmakers, electricians, etc. An additional 5000 have become farmers or are in agricultural or kindred occupations. Over 3000 have entered professional fields. Of this number about 1700 have gone into ones where shortages exist, as education, medicine, and engineering.

It is estimated that 10 million dollars in federal income taxes will reach the federal treasury annually from these rehabilitated workers who during the rest of their working lives will pay in federal income taxes alone more than $10 for every federal dollar expended on their rehabilitation. In the three years immediately after their restoration to useful work their income payments will exceed the expenditures of the Federal Government on the public vocational rehabilitation program during 1952 by over 30 per cent.

Public assistance payments currently made to over a half million disabled men and women and their 370,000 dependent children now cost American taxpayers an estimated 500 million dollars each year. Nearly one out of every five of those rehabilitated in the fiscal year 1953 — 11,355 out of 61,308 — were receiving some or all of their support from public assistance agencies, and many more would have become public charges if they had not been placed in useful occupations before the effects of disability and enforced idleness had exhausted their resources.

In 1953, the cost of operating the federal-state vocational rehabilitation program averaged $564 per person rehabilitated. This is just about three fourths of the estimated average cost of maintaining a disabled person on public assistance rolls for one year. In total dollar amounts, the costs of a single year's public assistance maintenance for the 11,355 recipients who were rehabilitated in 1953 are estimated at 8.7 million dollars. Program costs for the rehabilitation of this number of individuals were only about 6.4 million dollars.

The program for restoring disabled Americans to satisfying and productive lives is so fraught with human values that it cannot be measured in economic terms alone. That disability and dependency generally go hand in hand and frequently bring troubling social problems in their wake is an accepted truism. Prolonged dependency may entail not only a loss of financial independence for the disabled person but damaged morale and a lowered living standard that can eventuate in the breakup of the home and dissolution of family life.

Our nation's concern with helping the handicapped to become self-supporting, gainfully occupied, self-respecting citizens is, as President Eisenhower noted when signing the new rehabilitation measure, affirmation "to all the world (of) the great value we, in America, place upon the dignity and worth of each individual human being."

THE AMERICAN
School Board Journal
A Periodical of School Administration
William C. Bruce, *Editor*

SCHOOLHOUSING IN 1955

THE construction of new school buildings and the remodeling and enlargement of existing school buildings to meet the continued increase in enrollment and to adapt the existing school plant to the broadened program of instruction in elementary and secondary schools is again the number one challenge to American school boards which must be met with increased vigor during 1955.

The school building shortage continues to persist in widely separated areas of the country and has, in fact, become definitely worse in most urban communities. The latest N.E.A. estimates indicate that in 58 per cent of the states there is a "considerable" or "very large" shortage of schoolrooms. The condition has been relieved in rural elementary schools, but the number of states which have serious needs for additional secondary schools has risen from 41 states in 1953–54 to 45 states in 1954–55. In only nine states no children are on part time, but in 39 states the average per cent of children who are deprived of full-time attendance is 2.3 per cent.

The total outlay for school building construction rose in 1954 to 2,100 million dollars for public school buildings and 600 million dollars for private school structures. According to estimates of the U. S. Department of Commerce, the 1955 expenditures for public school buildings will reach the all-time high of 2,400 million dollars, and for private schools will total 650 million dollars.

Improvement in the total schoolhousing situation has not improved and does not promise to improve in spite of the huge increases in funds expended during the past year and provided for use during 1955. The reasons are: (1) There has been a continued increase in the cost of building materials and labor. The index which was 583 in December, 1953, has risen to 598 in November, 1954. (2) While there has been a steady movement for simplifying the design of school building and avoiding meaningless ornament and excessively expensive materials, there has been a steady rise in the total square foot area and the character of spaces required for the expanding educational programs. It is a commonplace experience that somewhat more floor area is provided for administrative rooms, all-purpose rooms, shops, cafeterias, libraries, auditoriums, gymnasiums, than is required for academic classrooms and laboratories. (3) The enrollments are continuing to rise and will rise during the next decade. According to the U. S. Office of Education the enrollments in public schools are:

Year	*Elementary*	*Secondary*	*Total*
1952–53	22,039,000	6,197,000	28,236,000
1953–54	22,801,000	6,388,000	29,189,400
1954–55	24,091,500	6,582,300	30,673,800
1955–56*	25,600,000	7,000,000	32,500,000
1959–60*	28,100,000	8,500,000	36,600,000

*Estimated.

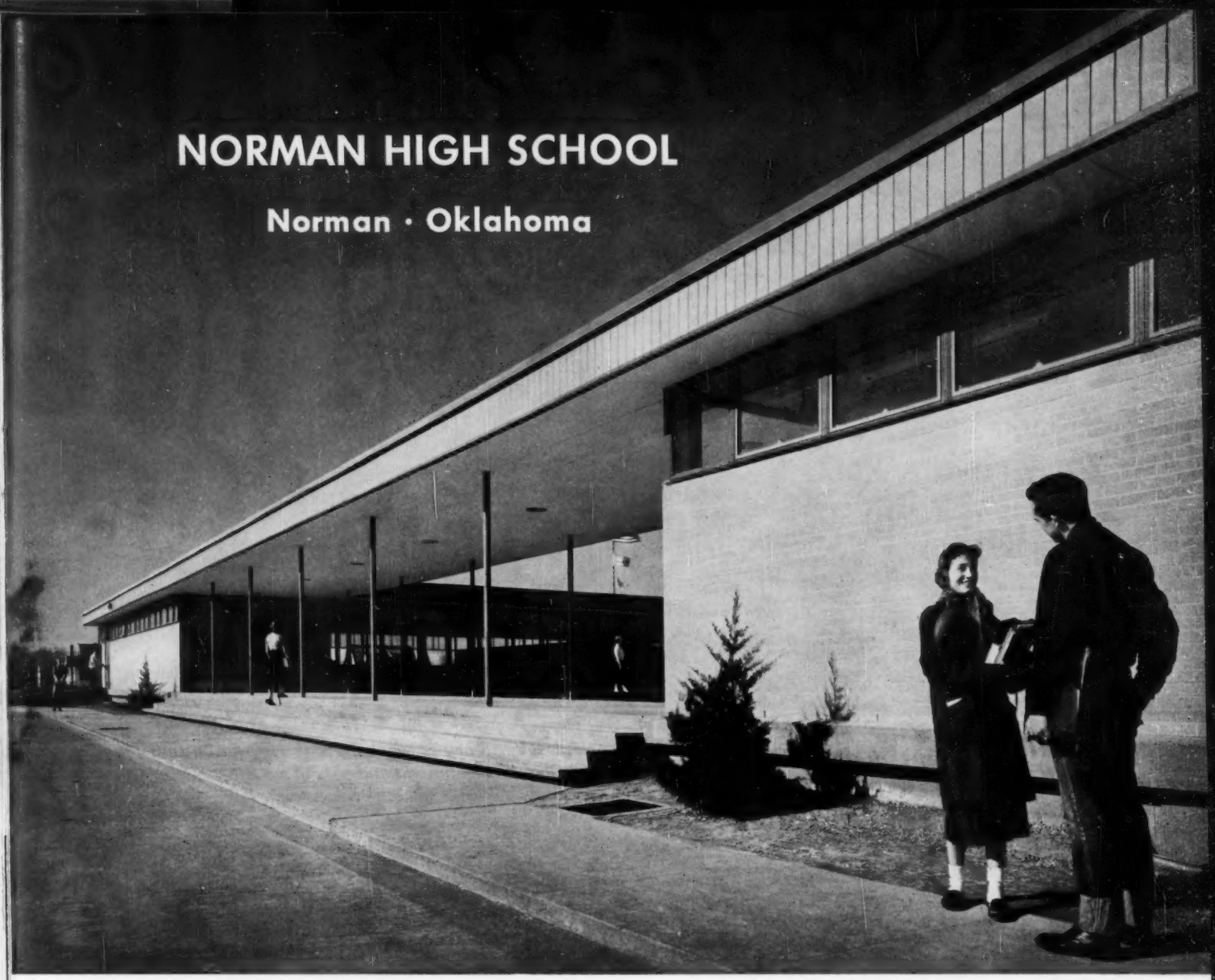
The high cost of labor and materials has caused the great majority of school boards to avoid sharply making schools look like swank country clubs. The basic types of construction of new school buildings continue to be used with little change over the past decade. Steel, concrete, brick, cement block, and wood truss framing, are still the favorite types of construction both for initial safety and low cost, and ultimate economy. The tendency generally is toward medium cost materials which promise maximum wear under the heavy use which children give to floors, wainscoting, wardrobes, stairs, and hardware.

The almost universal acceptance of contemporary design for school exteriors has caused too many architects to ignore the old ideals of special appropriateness of exterior appearance to the functions of school buildings. Some of the so-called architectural emphasis is not only functionally illogical but is wholly lacking in good proportion, mass, and line. School boards are fully justified in asking their architects to take a good second look at the design proposed for each new school building and to ask whether a structure which will be in the consciousness of the children and of the entire community for three or four generations cannot be made more genuinely satisfying from the aesthetic standpoint. Unless we accept the idea that the educational program carried on in the schools is as materialistic as the work carried on in a factory or an office building, there is good reason for making school buildings reflect some imagination and feeling.

The total layout of school buildings has been influenced during the past two years by the vigorous studies of the needs of school plants in the warmer areas of the country. It is to be feared that unless northern and eastern school authorities are discriminating, the sprawling layouts highly desirable in the southern tier of states will be accepted as desirable for the country at large and that semidetached buildings, which will be extremely expensive to heat and to maintain, will be thoughtlessly erected in areas where the old principles of compact arrangement resulting in minimum exterior wall areas are essential.

The increasingly serious teacher shortage and the staggering growth in enrollments will necessitate in the next few years radical changes in the size and organization of classes and in the methods of teaching on both the elementary and secondary school levels. There is no professional wisdom in the present demand for smaller classes in smaller classrooms. Within the foreseeable future, the growing crisis in the shortage of competent teachers will compel administrators and school boards to provide assistance to teachers and to devise new forms of class organization that will give every child a full day of instruction at least under competent supervision. Wherever the present and future experimentation will lead, it is certain that radical innovations in schoolroom planning must be made to properly house teachers and their human and/or mechanical assistants.

In a great number of communities the financing of school building projects is almost impossible without state or federal aid. During 1954, the bond market was exceedingly steady and the average cost of bonds issued by school districts with a good credit rating ranged between 2.25 and 2.50 per cent. There has been a growing tendency to utilize such devices as school building corporations, but these are unsatisfactory in all but emergency situations. There is need for legislation, similar to the Florida law, which will give each needy school district an annual state subsidy for school plant construction. The outlook for school bonds in 1955 is bright and the prices should be sufficiently high to keep the average cost in the neighborhood of 2.35 to 2.40 per cent.



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Continued ▶

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Above—the comfortable, bright library is equipped with Heywood's functional S 962 Tables and S 915 Chairs. Lightweight and easy to move, here is furniture ideally suited to this room . . . which is also used as a study area.

Above—home economics area which is comprised of three rooms: a living room, sewing room and kitchen. Heywood's versatile, lightweight S 967 Plastic Top Tables and S 915 Chairs are used throughout.

Below—the immaculate, modern cafeteria is also equipped with S 967 Tables and S 915 Chairs. This damage-resistant furniture is ideally suited for this busy area.

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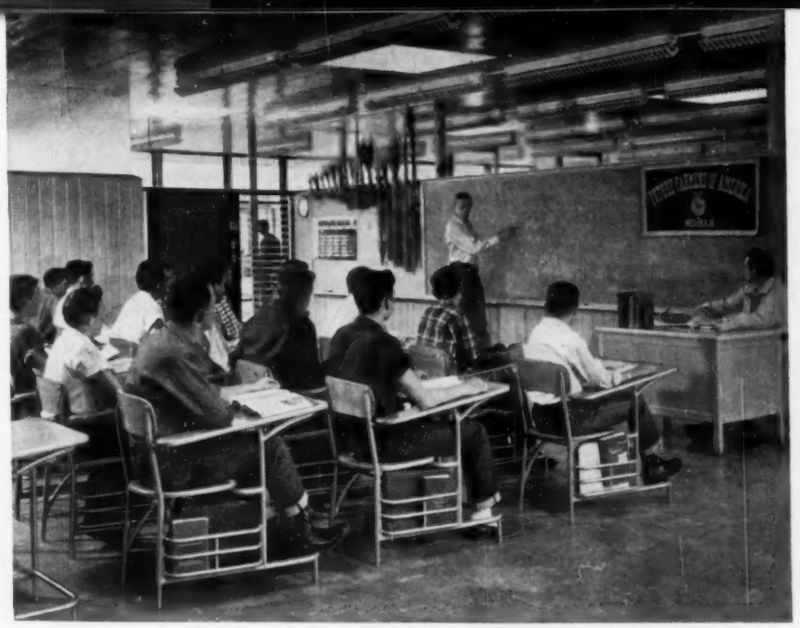
TOP AWARD WINNING NORMAN WITH HEYWOOD SCHOOL



Above—typical classroom comfortably holds 30 of Heywood's S 501 STBR Movable Study-Top Chair Units. These functional units can readily be moved around for group discussions.

Below—Norman High's unusually spacious auditorium is as modern in comfort as it is in design. Heywood's popular TC 700 Auditorium Chairs offer exceptionally comfortable seating for this important and often used area.

Above—Heywood's S915 All Purpose Chairs are shown in use by the Norman High Band. These chairs (available in 8 graded sizes) are installed throughout this school for general or group seating.

EDUCATIONAL PLANNING of the Norman building was developed by Superintendent Don Garrison, members of his staff and committees of Norman citizens. Architects were Caudill, Rowlett, Scott and Associates, Bryan, Texas; and Perkins & Will, Chicago, Ill. A. F. Williams Furniture Co., Heywood-Wakefield distributor in Oklahoma City installed the Tubular Steel School Furniture. For further information on the many *Extra Quality* features of Heywood School Furniture, write for free, illustrated catalog. Heywood-Wakefield, School Furniture Division, Menominee, Michigan; Gardner, Mass.

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"All Aboard"

N.S.B.A. Study Conference Report

EDWARD M. TUTTLE

In the life and growth of the National School Boards Association, the Second Nationwide Study Conference for School Board Association Leaders which was held in St. Paul, Minn., October 29–31, 1954, was another milestone of progress.

Second Conference Better

"Last year's meeting in Evansville, Ind., was a good one, but to my thinking and observation this meeting in St. Paul, Minn., was an even bigger success and gave me more and better ideas to work with this coming year."

"Of the many conferences and workshops I have attended, none has given me the satisfaction that this one did. I will use my efforts for improving the situation here in our own state and for furthering the fortunes of the N.S.B.A."

"I think the St. Paul meeting will be more productive of results than the Evansville Conference because we had more clearly in mind the objectives which we hope to attain."

"During the discussion meetings I was amazed at the ability and ideas that came from the small groups."

"The help and ideas that I received from the panel discussions should result in the saving of tens of thousands of dollars in building construction costs here in my city alone."

"In my opinion there is no organization in the country which can do more to strengthen and improve education than can the National School Boards Association through the education and stimulation of its members."

The above comments are samplings from the dozens that were received following the close of the St. Paul Conference. There were some constructive criticisms, also, mainly to the effect that the conference should have been at least one day longer, and that the state association secretaries especially needed an opportunity to exchange ideas among themselves. If we have the privilege of holding other such conferences in years to come, these suggestions will be borne in mind.

How It All Came About

Some JOURNAL readers remember that in 1953 the N.S.B.A. was given a grant of money by The Fund for the Advancement of Education through the National Citizens Commission for the Public Schools for the purpose of holding two study conferences for state and national leaders of the school boards association movement. The first conference was held in Evansville, Ind., in November, 1953, and was reported in the January, 1954, issue of the JOURNAL. Now, a year later, we are reporting on the second conference. These two conferences, more than anything else, have served to provide tremendous stimulus to the growth in service of school boards associations to their local member boards which, after all, is their major function.

Who Was There

In attendance at St. Paul were 141 persons of whom 117 were official delegates from 46 states, N.S.B.A. officers and directors, and speakers and consultants. The others were additional delegates, visitors, and local school board leaders, present on invitation but at their own expense. We were especially honored to have among the visitors Dr. Alvin C. Eurich, vice-president, The Fund for the Advancement of Education; Roy E. Larsen, chairman; Samuel C. Gale, vice-chairman; Henry Toy, Jr., director; and Cecil Hartung, regional director, National Citizens Commission for the Public Schools; and William C. Bruce, editor, SCHOOL BOARD JOURNAL.

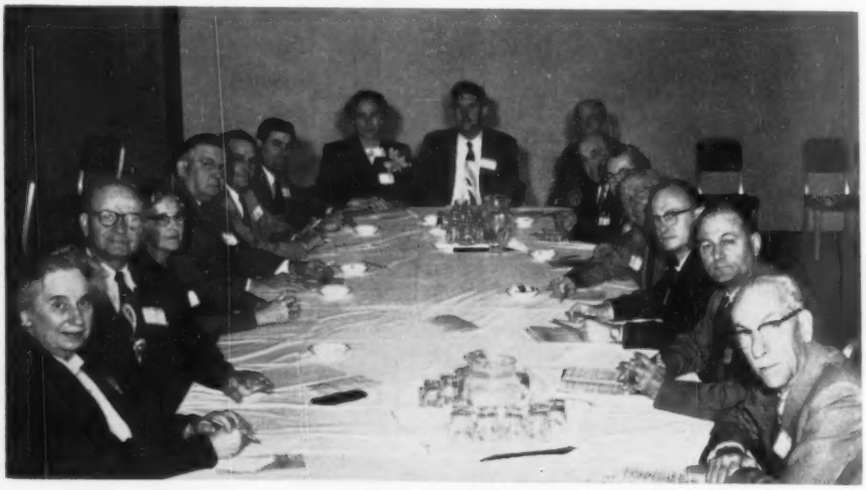
Among the delegates were 35 state association presidents, 7 past presidents, 10 vice-presidents, 10 directors, and 33 secretaries.

On the program, in addition to N.S.B.A. officers, were Dr. Samuel M. Brownell, United States Commissioner of Education; Hon. C. Elmer Anderson, governor of Minnesota; Hon. John Dillon, mayor of St. Paul; Dean Schweickhard, Minnesota Commissioner of Education; Forrest Conner, St. Paul superintendent of schools; Rufus Putnam, Minneapolis superintendent of schools; and Myron W. Clark, Minnesota Commissioner of Agriculture, formerly a vice-president of the N.S.B.A.

The group of notable consultants included Dr. Maurice E. Stapley, assistant dean of education, Indiana University, the conference co-ordinator; Dr. Walter G. Cocking, editor *The School Executive* magazine; Dean M. L. Cushman, College of Education, University of North Dakota; Mrs. Wilda Freebern Faust, executive secretary, Future Teachers of America; Dr. Ray L. Hamon, chief, School Housing Section, U. S. Office of Education; Dr. H. H. Linn, professor of education, Teachers College, Columbia University; Dr. Ray C. Maul, assistant director, Research Division, National Education Association; Dr. W. D. McClurkin, director, Division of Surveys and Field Services, George Peabody College for Teachers, and secretary, National Council on School House Construction; Dr. Paul W. Seagers, school building consultant, Indiana University; and Harold Silverthorn, consultant on school plant, Washington State Department of Public Instruction.

In charge of local arrangements was W. A. Wettergren, executive secretary,

(Continued on page 82)



A Typical Study Group

Members of Group A, who discussed the position of school board associations in the search for teachers, included (left to right): Mrs. Elizabeth Hudson, Calif.; A. A. Swenson, Pa.; Mrs. Oscar E. Hedin, Minn.; J. H. Woodall, Sr., Ga.; Leon White, Okla.; B. A. Rogers, Mo.; Mrs. Russell B. Petty (chairman), Utah; Dr. M. A. McGhehey, Ind.; G. M. McCuen, S. C.; D. B. Doner, S. Dak.; Mrs. Harriette C. Bidwell, Conn.; W. H. Egeln, N. J.; R. M. Shaw, Ohio; J. C. Porterfield, Nebr.; and Dr. W. F. Bernstorf, Kans.

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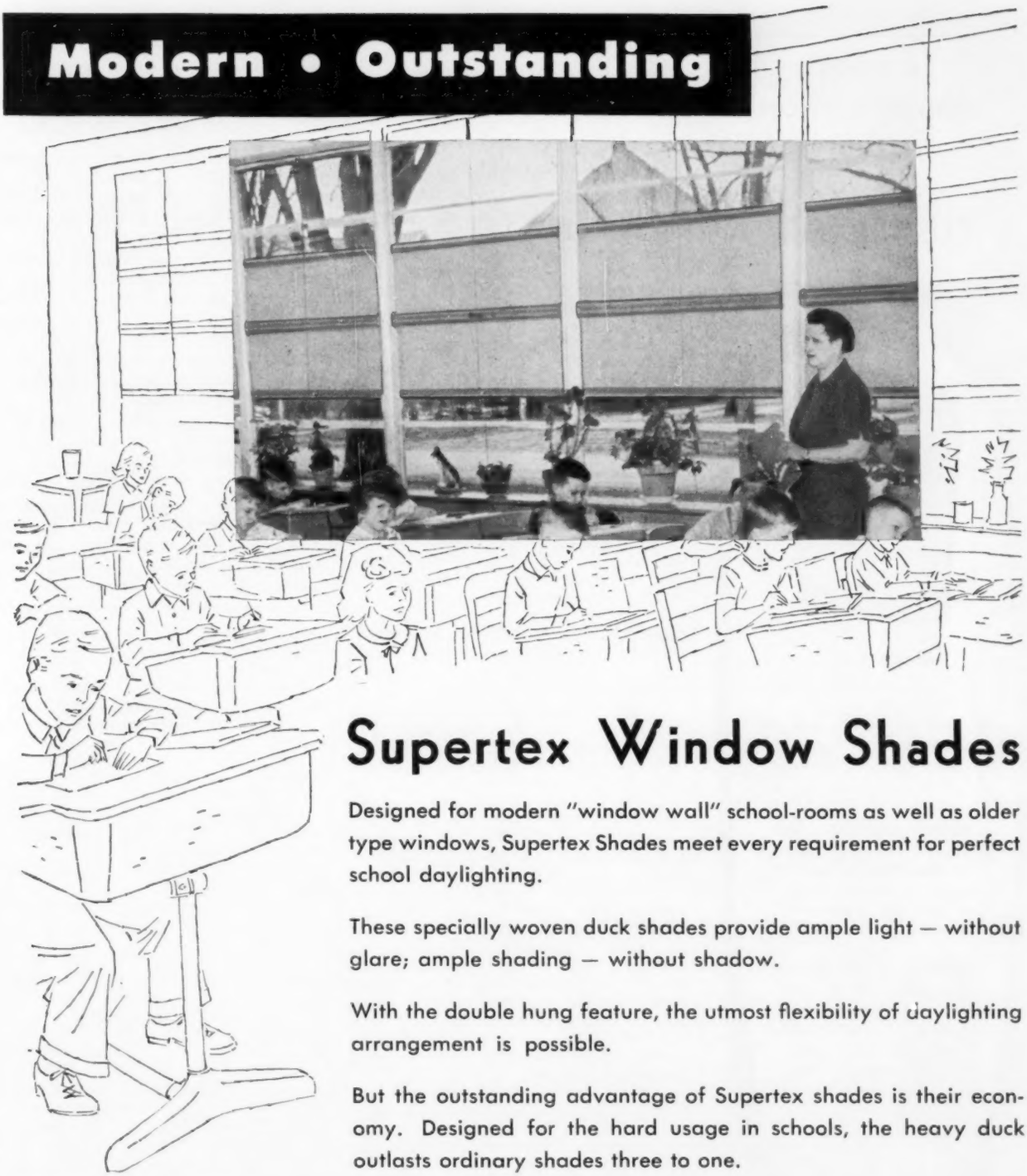

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N.S.B.A. CONFERENCE

(Continued from page 80)

Minnesota School Board Association, ably assisted by other association officers and directors, and by members of the St. Paul board of education, Mrs. Fred L. Paul, president.

The Meat of the Meeting

The conference planning committee had adopted as the theme for the conference "How School Boards Associations Can Help Secure the Necessary Teachers and Facilities for America's Children." Two speakers laid the background of facts as a basis for discussion — Dr. Ray C. Maul on "The Teacher Shortage in the United States" (published in last month's JOURNAL), and Dr. Ray L. Hamon on "Housing America's School Children." The conference then divided into eight groups for discussion, four of them in the area of teacher shortage and four in the area of building shortage. Some of the conclusions and recommendations presented by the recorders of these groups at the final summary session of the conference are given below. A complete report of the Study Conference is being prepared by Dr. Stapley, the coordinator, for publication by the N.S.B.A. and distribution to all who attended and to others who may be interested.

Four Groups on Teacher Shortage

GROUP A topic was "What should school board associations do to stimulate the recruitment of teachers to meet the increasing shortage of personnel?" The group agreed at the start that recruitment to be justified must seek to find and select the very best potential teachers. It offered the following recommendations:

1. The national and state school boards associations should recognize the serious responsibility of school boards for the selective recruitment of teachers and not leave it wholly to others.

2. They should move promptly to cooperate with, bolster, buttress, and even sometimes lead a united attack on the teacher recruitment problem already started by groups like the N.E.A., state education associations, state departments of education, the P.T.A., teachers' colleges, chambers of commerce, and others. In a very real sense school boards are the keystone to the arch of the bridge needed to span the teacher shortage.

3. They should provide plans and materials for local boards of education which will involve:

a) Inspiration for genuine and sincere fostering of the Future Teachers of America movement by giving schools time and money for P.T.A. groups to get out and see the things they ought to see;

b) Curriculum supervision which will make sure that the vocational guidance program does not sell teaching short; and

c) A campaign to stimulate the wider showing of films like "What Greater Gift?" "Skippy and the 3 R's," and "Who Will Teach Your Child?"

GROUP B discussed the question "What should school board associations do to improve teacher morale and teacher prestige?" This group recognized that adequate salaries are an important factor in this area, but concentrated on other items because salary problems had been assigned to another group. It concluded that morale can be improved by:

1. Developing mutual confidence between the school board and the teaching staff.

2. Supporting worthy legislation of mutual concern to teachers and the community.

3. Efforts by the board to become better acquainted with indivdual staff members and encouragement of citizens to do the same.

4. Working out personnel policies cooperatively with all those concerned, including the lay public.

5. Maintaining at all levels high professional standards.

6. Publishing policies, handbooks, and other materials designed to assist the teaching staff.

Group B recommended that the national and state associations urge and promote the suggestions offered above and, in addition, conduct campaigns to present teaching as a career to high school students, and research projects to reveal the causes of teacher prestige or the lack of it.

GROUP C wrestled with the question of "What should school board associations do to effect school district reorganization in order to relieve the teacher shortage?" It was recognized at the start that district reorganization is just one factor in the problem of teacher shortage, but also that four fifths of the shortage is concentrated in country areas and towns of less than 2500 population where reorganization is a current issue. The group came up with the following recommendations:

1. That state school board associations sponsor studies of the status of district reorganization and the possibility of recommending a plan for reorganizing in terms of the best interests of the children and all concerned.

2. That associations seek through con-

(Concluded on page 87)

PROMISE

"Every child comes with the message that God is not yet discouraged of man."
— RABINDRANATH TAGORE

Each newborn babe holds promise for the future of mankind. How far that promise will be fulfilled neither parents, relatives, friends, nor society at large can forecast. Time alone will tell. But we do know that the conditions of freedom and opportunity which surround the child as it grows to manhood or womanhood will, in large measure, determine its destiny. Our leaders of today — statesmen, philosophers, artists, artisans, professionals, industrialists — were children a generation or two ago. The leaders a generation or two hence are in the cradles and kindergartens of today. Ours is the responsibility to provide for each child such an education that he may develop to the utmost his individual potentiality as a human being, as a member of our economic and social order, and as a citizen of his community, state, nation, and the world. — E. M. T.

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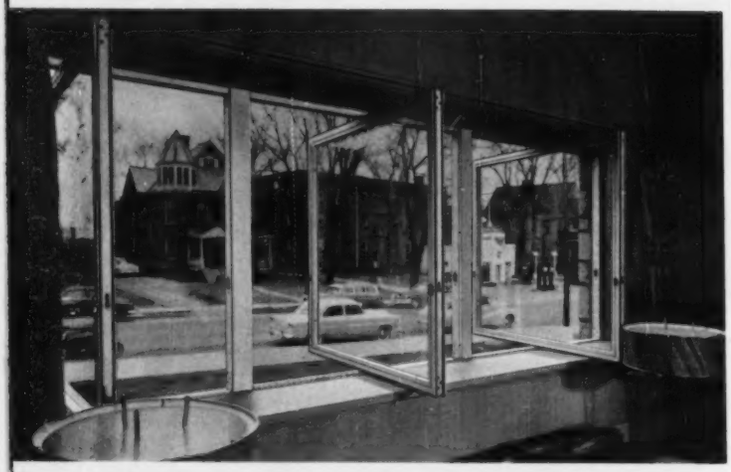

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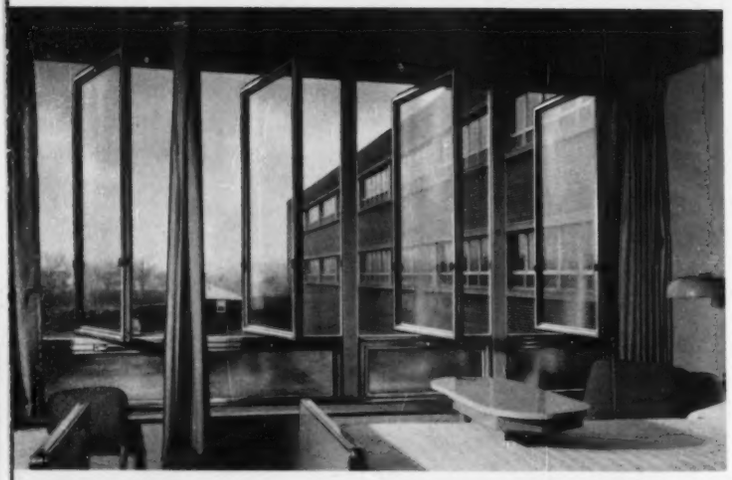

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N.S.B.A. CONFERENCE

(Concluded from page 82)

ferences, workshops, and all kinds of meetings involving many lay and professional groups, to develop criteria as to what requirements of district organization produce the best schools.

3. That associations work along with other groups in seeking legislation to carry out plans and criteria agreed upon, remembering that most legislatures are rural in nature and have a deep interest in this problem.

4. That school district reorganization should be high on the agenda for the governor's conferences on education in those states where it is of real concern, and for the White House Conference on Education in the fall of 1955.

5. That state associations publish in their *newsletters, bulletins,* and *journals* frequent reports of progress in school district reorganization and send them directly to local board members.

Group C further recommended that the N.S.B.A.:

1. Continue to hold an annual workshop or study conference at which district reorganization shall be discussed.

2. Transmit information on progress in reorganization from one state to another.

3. Seek funds to produce a motion picture on the problem of district reorganization with suggestions as to ways to solve it most effectively.

4. Work out with the Department of Rural Education of the N.E.A. a plan to reprint and widely distribute *A Key to Better Education* based on the findings of the National Commission on School District Reorganization (1947).

GROUP D dealt with the question of "What should school board associations do to improve salaries, pensions, certification standards, etc., of teachers in order to secure a larger number of teachers in the profession?" The group took the position at the start that adequate salaries and other material benefits are necessary to attract and retain competent teachers. Among its recommendations were the following:

1. That boards of education and their associations encourage citizens' committees to help educate the public to the need for better salaries for teachers.

2. That they work to implement a minimum program of education.

3. That they stimulate tax support for adequate teachers' salaries.

4. That they actively endorse certification requirements maintaining the minimum of a bachelor's degree, and designed to upgrade the profession and result in the employment of only fully qualified personnel.

5. That they strive to perfect provisions for the protection of competent teachers while at the same time retaining provisions for separation for justifiable cause.

6. That the N.S.B.A. and state associations work toward greater reciprocity among the states on teacher certification.

Four Groups on Building Shortage

GROUP E had for its topic "What should school board associations do to stimulate more functional, serviceable, and economical school building construction?" The group quickly agreed that the word "stimulate" was the key to the question, and presented the following recommendations:

1. School board associations should encourage state departments of education to set up organizations of competent school building consultants for research and public service to local districts.

2. They should urge their respective state legislatures to provide funds to promote these consultative and research services.

3. State associations should develop strongly so as to promote all sorts of means for spreading information on school construction through conferences, workshops, published materials, lending libraries, etc.

4. They should stimulate local school boards to work co-operatively with other groups concerned on the local level such as highway, zone, park, and other boards.

5. They should encourage local boards to involve school personnel in the planning at all steps.

6. They should show the value to local districts of securing competent professional consultants on all phases of the building project — design, engineering, finance, etc.

7. Associations should stimulate an adequately supported program of continuous research at the state level through universities and other centers.

8. They should oppose state mandates which discourage local initiative.

9. They should seek school board representation on all state level committees, councils, or authorities on school buildings.

10. Through the N.S.B.A. and directly, state associations should exchange all materials and information which will promote better school buildings.

GROUP F considered the matter of "What should school board associations do to encourage rehabilitation of buildings that are structurally sound?" They found that few persons in the group had much experience in this area and relied heavily on their consultant for guidance. They came out with two rules-of-thumb and two recommendations. The rules were:

1. That any school plant, however sound, which would require more than 50 per cent of the cost of replacement to modernize it is probably a poor investment.

2. That any school plant 50 years old or more is probably a poor prospect for rehabilitation chiefly because of its lack of adaptation to modern functional instruction. The group pointed out that there could be exceptions to both these rules and that each case had to be studied on its own merits. It recommended to the N.S.B.A. and state associations that a study be undertaken of the problem of school building rehabilitation and that the information gained be made widely available. Further, that the associations urge local boards to make careful studies of their own plans in an endeavor to reach wise decisions regarding rehabilitation expenditures.

GROUP G faced the knotty question of "What should school board associations do to secure greater flexibility in school building codes?" The group concluded that since school boards are responsible for the expenditure of billions of dollars in school construction which affects the health, safety, and welfare of America's children, and which should represent an efficient expenditure of every dollar, their associations should:

1. Take the initiative in working with chief state school officers to set up in every state a competent School Building Advisory Committee whose function it would be:
   a) To review existing building codes;
   b) To set up minimum code requirements;
   c) To simplify the codes;
   d) To recommend standard specifications where possible;
   e) To review the codes annually.
2. Such a School Building Advisory Committee should be broadly representative and include, among others, members from the State Board of Education, State Board of Health, State Director of School Buildings, architects and builders, school superintendents (large and small districts), school boards, municipal leagues, etc.

GROUP H got down to the real heart of school building construction by discussing "What should school board associations do to improve financing procedures and to secure sufficient funds for constructing school buildings? Emphasis throughout was placed on securing effective and efficient school plants. The group recommended that school board associations can help to improve financing:

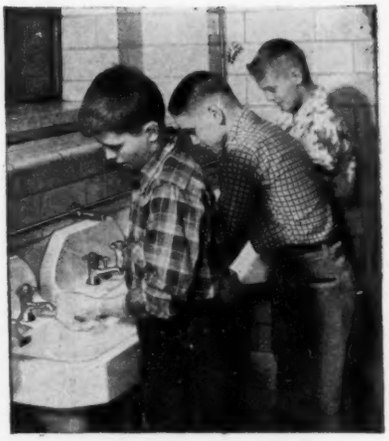
1. By joining with other taxing bodies in securing uniform assessments of property based on real values.

2. By working for the taxation of all private properties with insistence that, when exemptions are given, the state should replace the exemptions in the local district.

3. By encouraging the reorganization of school districts into units which make possible sound and effective educational programs.

4. By advocating that states should supply funds for school buildings where local districts have made effort to provide funds to the limit of their ability.

5. By supporting legislation authorizing the sale of bonds by a simple majority of those voting on the referendum without requirement of a property qualification.



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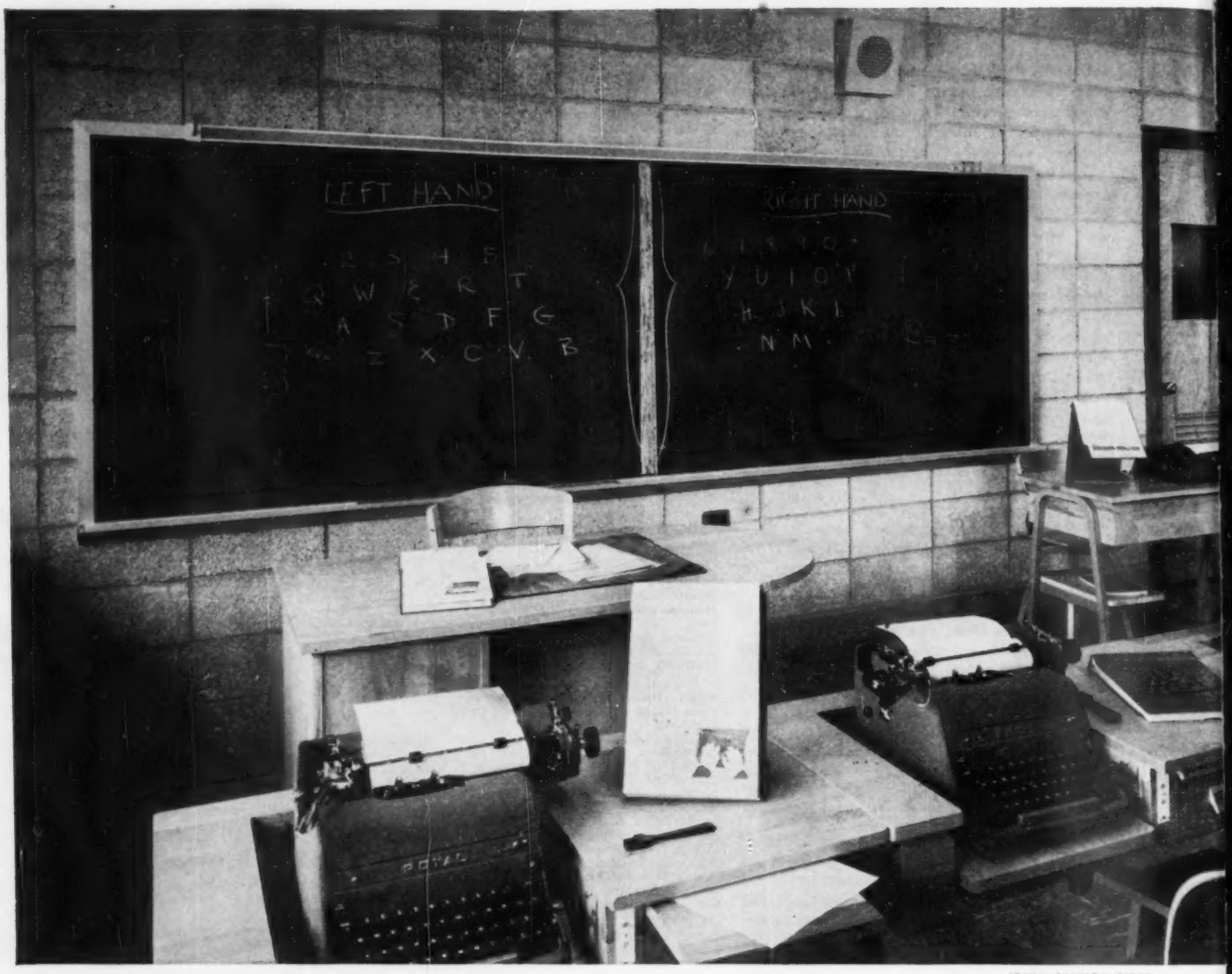
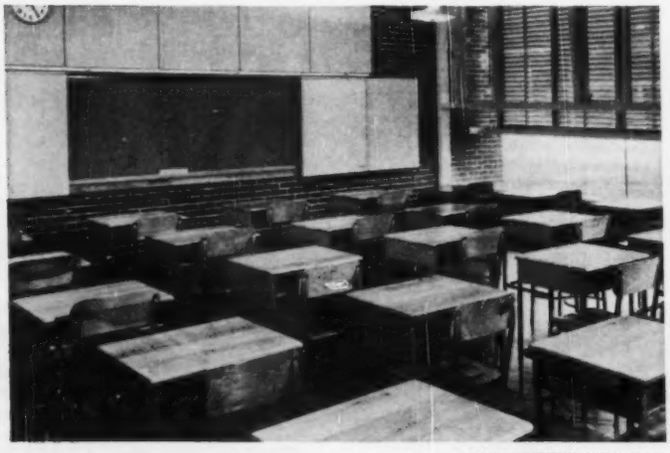


ARCH.—ROBERT A. GREEN

ARMORPLY CHALKBOARD is installed on cinder block wall in typing classroom of Valhalla Junior High School, Valhalla, N. Y.

Only Armorply Chalkboard gives you these

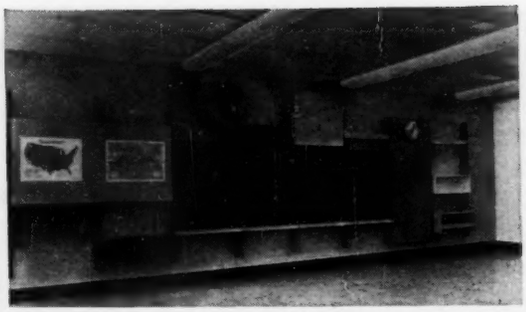


ARCH.—KETCHUM, GINA & SHARP

SLIDING PANELS cover Armorply Chalkboard, allowing one section at a time to be uncovered for quizzes, formal exams. Darien Junior High School, Darien, Conn.

ARCH.—ARTHUR RIGOLO

MAGNETS pin science articles, student papers to board in science classroom of Fair Lawn Junior High School, Fair Lawn, N. J.

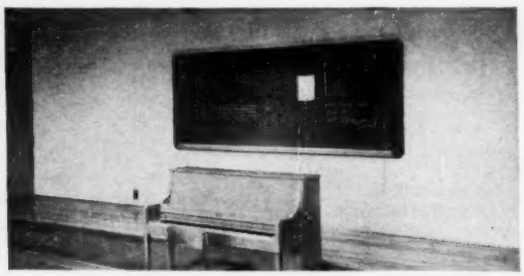


ARCH.—KETCHUM GINA & SHARP

"LIVE WALL" of Armorply Chalkboard allows adjustment of chalkboard height to height of child in three schools in Mineola School District, N. Y.

ARCH.—ROBERT A. GREEN

EASY POSTING of artwork is made possible by Armorply Chalkboard in art classroom in Valhalla Junior High School, Valhalla, N. Y.



ARCH.—ARTHUR RIGOLO

FRAMELESS installation carries out modern functional theme in the auditorium of Fair Lawn Junior High School, Fair Lawn, N. J.

5 unique advantages

1. EYE-SAVING GREEN color of Armorply Chalkboard gives maximum readability. Extensive tests prove that it is the best background color for chalk ever devised. And Armorply's reflectance factor of 18.5% is considered ideal; the Illuminating Engineering Society and the American Institute of Architects recommend a factor of not less than 15% and not more than 20%.

2. SPECIAL SURFACE FOR VISUAL AIDS. Armorply's porcelain-on-steel surface† opens up whole new fields in the use of magnetic visual aid devices. In science classes particularly, it makes possible rapid, step-by-step indication of the progress of chemical and physical reactions; algebraic and chemical equations take on exciting new visual meaning.

3. SAVE UP TO 30% in installation costs because Armorply Chalkboard can be installed without trim. If trim is desired, we now offer our own Weldwood Aluminum Chalkboard Trim which costs less than any similar product on the market. You save, too, because Armorply needs no costly fixed grounds or other surface preparation: it mounts directly to plastered or unplastered wall with ordinary bolts or screws.

4. NEVER NEEDS REFINISHING. Armorply Chalkboard is tough: it won't buckle, warp, shatter or break under impact, stress, temperature changes or concussion; it defies scratching, chipping and denting. And Armorply Chalkboard's easy to erase, easy to clean.

5. GUARANTEED FOR LIFE. The United States Plywood Corporation *guarantees* Armorply Chalkboard *for the life of the building in which it is installed.* †PORCELAIN FACES BY THE BETTINGER CORP.

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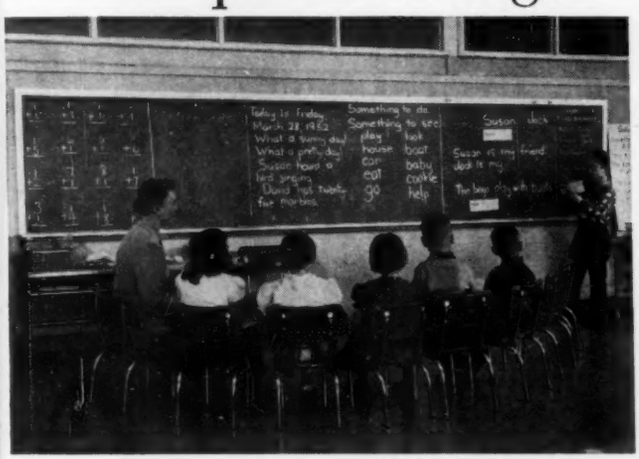

ARCH.—SOMES, GRISWALD, BOYDEN, WYLDE & AMES

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BRANCH PLANT AT NAHMA, MICHIGAN

SCHOOL BUILDING NEWS

ARCHITECT RECOGNIZED

R. G. Alexander, president of the architectural firm of Wm. B. Ittner, Inc., St. Louis, has been honored by his associates by a life membership in the National Education Association. Mr. Alexander has been head of the firm since the death of Wm. B. Ittner and has carried the heavy responsibility of the Ittner office for nearly four decades. He has been particularly active in the planning of school buildings and, with his associates, has worked strongly in the direction of making all Ittner's school buildings meet the educational objectives of the schools which they housed. The presentation was made by Dr. John Bracken, superintendent of schools, Clayton, Mo.

FUNCTIONAL SCHOOL

The school board of Dist. 165, Industry, Ill., has completed plans for an elementary and high school building, to cost $500,000. Except for the common use of the all-purpose room for the noon lunches, all instructional facilities of the building, entrances, service rooms, etc., have been planned for complete separation of the grade pupils from the high school students. Similar independent arrangements are made for play and athletics.

SENIOR HIGH SCHOOL

The board of education of Abington township school district, Abington, Pa., has begun the construction of a new senior high school plant, to cost $5,950,000. The plant to be erected in groups, is located on a 70-acre site, and is planned to accommodate 1500 students in classrooms, and 2000 in gymnasium and other facilities. It will include an auditorium for school and community uses, a large gymnasium, a modern swimming pool, as well as a play area and a high school athletic field.

APPROVE BUILDING PROGRAM

The board of education of Rock Island, Ill., has completed a very successful school bond campaign, which resulted in the approval of 1 million dollars worth of new school building projects. The board is now completing an $800,000 addition to one of the junior high schools. During the past spring and summer additions were built to two elementary schools to accommodate rapidly increasing enrollments.

REMODELING PROGRAM

The school board of Dist. 39, Wilmette, Ill., has let the contracts for the construction of additions and remodeling at three school buildings. The plans call for new gymnasiums at three schools, new classroom units at three schools, and the entire remodeling of an old building for a cafeteria and auditorium unit. The projects, to cost $1,713,969, will be financed with a $2,000,000 bond issue. The board is beginning plans for a major park and playfield at the Highcrest School.

STUDY BUILDING NEEDS

The board of education at Jacksonville, Ill., has appointed a citizens' advisory committee, composed of 34 members, which is to make a study of building needs and present recommendations to the board. The problems are largely at the junior and senior high school levels.

Monroe SCHOOL EQUIPMENT

School officials, when you are considering the purchase of items as listed below, please check those of particular interest, sign your name and address, cut out on dotted lines and mail to us. You will receive immediately full information with our complete catalog, direct factory prices, and special discount sheet for educational institutions.

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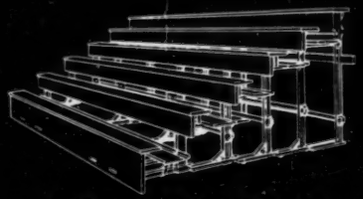
ment, an industrial-arts department, a music proved preliminary plans for a junior high



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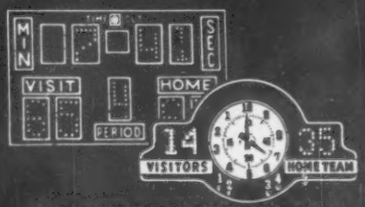

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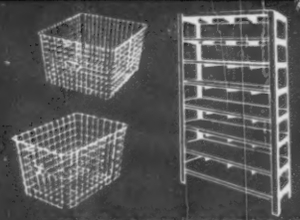

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SCHOOL BUILDING-NEWS

★ Dolton, Ill. The board of education of Dist. 148, Dolton, has approved an extensive school renovation program, to comprise a six-room primary school, two additions to schools, and alterations and repairs to three further buildings. The projects will cost $82,000 and construction will start in January, 1955.

★ Lawrenceville, Ill. The school board of Dist. 14 has in progress plans for a junior high school, to contain 14 classrooms, a gymnasium, a cafeteria, a library, a homemaking department, an industrial-arts department, a music department, a health center, a teachers' lounge, and offices. The building will be completed at a cost of $785,000.

★ The school board of Dist. 46, Elmhurst, Ill., has obtained a deed to a four-acre site and has begun plans for the construction of an eight-room school for grades kindergarten to sixth.

★ Huntley, Ill. School Dist. 158 will shortly occupy its grade and high school building, completed during the late fall of 1954. The building located on a 14-acre site, provides for a cafeteria, a multi-purpose room, a gymnasium auditorium, and a social science room, and has space for an athletic field equipped for baseball, football, and softball.

★ Union, N. J. The school board has approved preliminary plans for a junior high school building, to cost $1,800,000.

★ Quincy, Ill. The board of education has completed plans for a new senior high school, construction to begin in April, 1955. The building to be located on a 33-acre site, will be completed in September, 1956, at a cost of $2,900,000.

★ Hamilton, Ill. The board of education has begun plans for a senior high school, to cost $475,000, and to be completed in January, 1956.

★ Kinmundy, Ill. The board of education of Kinmundy-Alma Unit District, has let the contracts for the construction of an addition to the Alma School. Plans are in preparation for a 12-room school in Kinmundy.

★ Preston, Idaho. The board of education has let the contract for a new high school addition, to comprise an auto-mechanics section, a bus garage, a homemaking department, a library, a cafeteria, a music room, an art room, a gymnasium, and six classrooms.

★ Monmouth, Ill. The board of education of Dist. 38 has begun plans for four-room additions to two elementary schools, and the remodeling of a third building.

★ San Antonio, Tex. The board of education is completing the first stage of a school building program involving an expenditure of $14,000,000. The program which comprises new schools and some major additions will add 600 additional classrooms to the school plant.

★ East Moline, Ill. The board of education of Dist. No. 37 has received bids for four additions to grade schools, to cost about $700,000. The project provides 22 additional classrooms, a gymnasium, and special educational facilities.

★ Lincoln, Ill. The school board is engaged in the erection of an addition to a grade school, and another addition to the high school. During the past two years the board completed six new elementary schools or extension additions, and a large addition to one of the high schools.

★ The school board of Bowling Green, Ohio, has dedicated its new Kenwood elementary building, at a cost of $496,407. The building which is L shaped, consists of 12 classrooms, a kindergarten, a library, a multi-purpose room, a kitchen, a clinic, offices, and rest rooms. A combination auditorium-playroom and kitchen are grouped for school and community use. Messrs. Strong, Strong, and Strong, Lima, Ohio, were the architects.

★ LaSalle, Ill. At the close of the school year 1953–54, the board of education gave a testimonial dinner for its retiring school employees. At the dinner diamond service pins were presented to these employees. Guests were all employees, certificated, clercial, and custodial, and their wives and husbands. The board is planning to make the dinner an annual event.

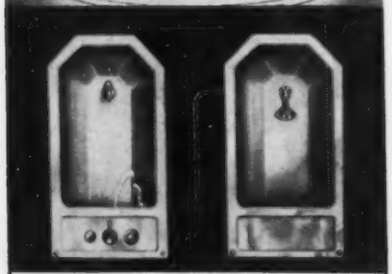
★ The men of the community in Unit School Dist. 200, Green View, Ill., recently completed the erection of a garage for the school buses. The construction was done entirely by voluntary labor and the only cost was the material furnished at 20 per cent discount. In return for the work the board admitted these men free to the remaining basketball games.

★ Kewanee, Ill. The school board of Dist. 229 has begun preliminary plans for a grade school, to cost $300,000, and a high school, to cost $1,200,000. Archt. Raymond A. Orupt, Rockford, is preparing plans and specifications.

★ Evanston, Ill. The board of education is completing an extensive school building program, comprising additions to several elementary schools, an orthopedic unit and gymnasium, a classroom and auditorium unit, and the Charles Dawes School, built to accommodate 450 to 500 students. The board plans the calling of a referendum next spring in anticipation of future building needs.

2 POPULAR SCHOOL Combinations

Halsey Taylor Counter-Type Fountain class-room unit, 20" x 30", with receptor of acid-resisting, gleaming white vitreous china or lifetime stainless steel. Chromium Plate Glass Filler and Fountain Head. All the usual Halsey Taylor sanitary features. Specify No. 4840.



This is an ideal combination for "gym" or athletic areas. The Halsey Taylor recessed Cuspidor, No. 4647, shown at right, is designed to be used with No. 4646 recessed wall type, shown at left. Special outlet supplies water to flushing jet of cuspidor. Semi-recessed models also available.

School boards and architects know that to specify Halsey Taylor drinking-water equipment is to provide the utmost in sanitation as well as trouble-free maintenance. Every Halsey Taylor product—whether fountain or cooler—is factory-tested for dependability in service . . . backed by years of specialization in manufacturing this type of equipment exclusively.

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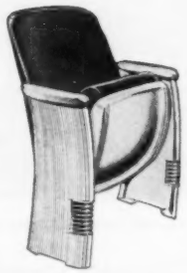
Auditorium, E. C. Glass High School, Lynchburg, Virginia, equipped with 2,116 full-upholstered Bodiform Chairs. Superintendent: Paul M. Munro. Architect: Pendleton S. Clark.

School and community programs benefit by

American Bodiform Auditorium Chairs



Automatic, uniform folding, silent, ¾ safety-fold seat action allows more room for passing and sweeping. No pinching or tearing hazards. Also available with folding tablet-arm.

The finest service to your school, plus a practical means of stimulating greater attendance at community programs, will make these chairs an investment of maximum value.

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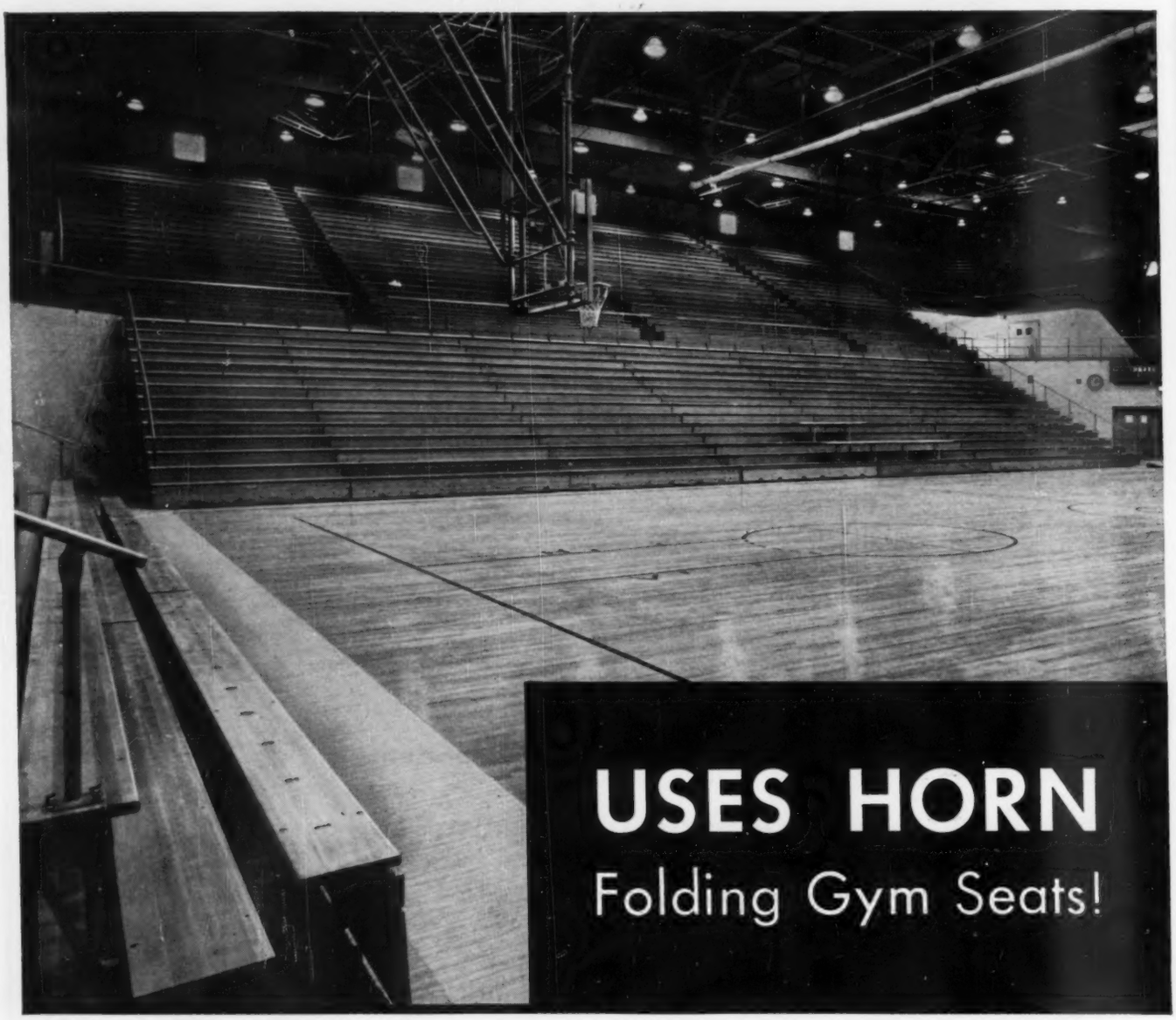

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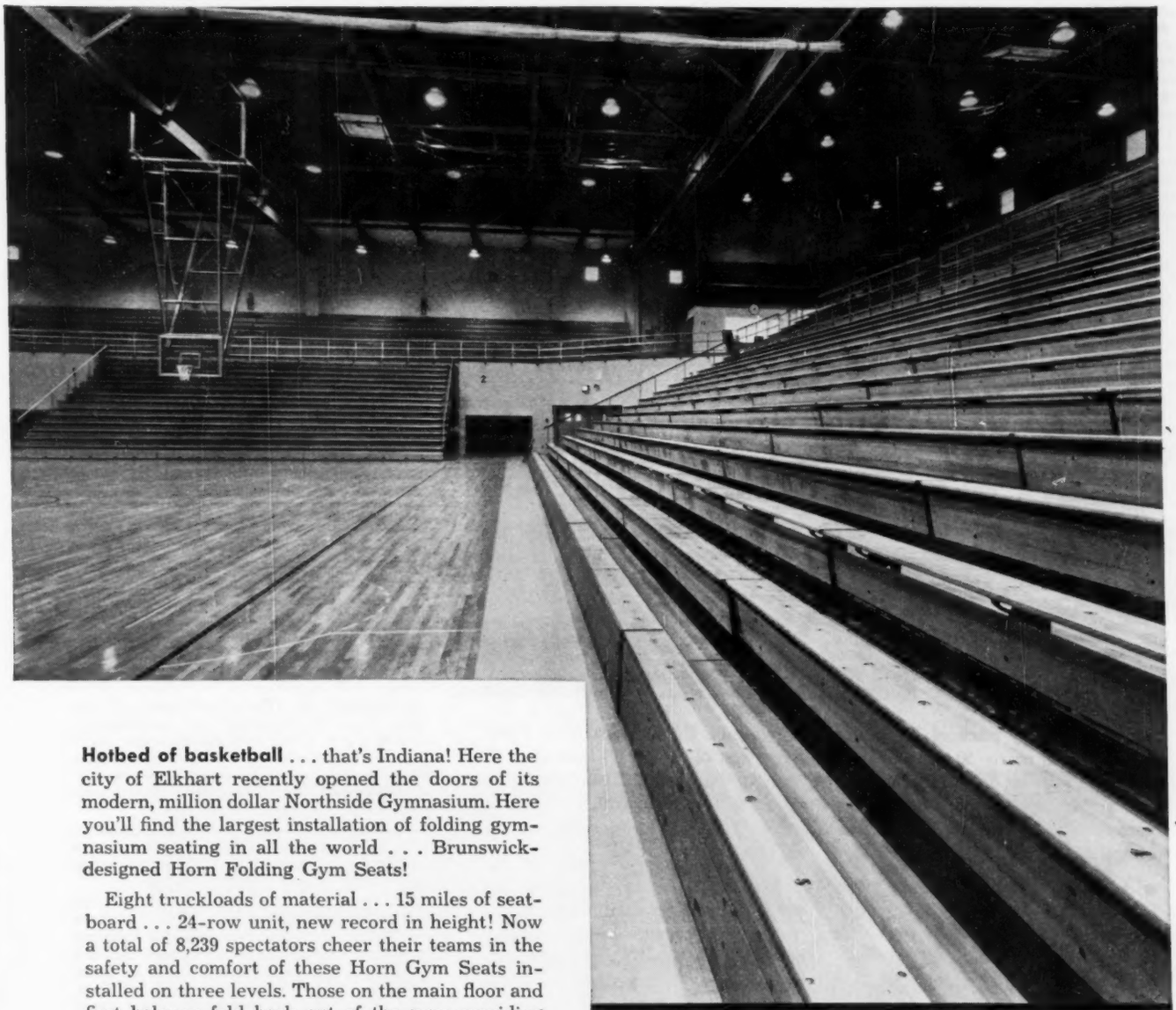
SCHOOL BUILDING

★ Northport, L. I., N. Y. The school board ... to include 18 projects, including ...

LARGEST
gym seats at Elkhart



Hotbed of basketball . . . that's Indiana! Here the city of Elkhart recently opened the doors of its modern, million dollar Northside Gymnasium. Here you'll find the largest installation of folding gymnasium seating in all the world . . . Brunswick-designed Horn Folding Gym Seats!

Eight truckloads of material . . . 15 miles of seatboard . . . 24-row unit, new record in height! Now a total of 8,239 spectators cheer their teams in the safety and comfort of these Horn Gym Seats installed on three levels. Those on the main floor and first balcony fold back out of the way providing five basketball courts in all.

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No problem is too simple or too complex for a Horn solution . . . no gym too small or too large for an installation of Horn Folding Gym Seats. Why not talk it over person-to-person? Write or wire today for the name of your nearest Horn agent.

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SCHOOL BUILDING

★ Marseilles, Ill. The board of education has begun the construction of an addition to the high school which was originally completed in 1936. The addition, to cost $570,000, will include 13 classrooms, a shop, a music wing, and a physical education department. Nicol & Nicol Associates, Chicago, are the architects.

★ The Lancaster County, Pa., school board has approved plans for a $2,500,000 school building program for South Lancaster. The plans call for an expansion of the South Lancaster high school, and for a new elementary school in East Drumore township.

★ Shreveport, La. The Caddo parish school board has approved final plans for additions to the Hamilton Terrace Junior High School and the Atkins Avenue School.

★ Anderson, Ind. Construction work has been started on the South Side Junior High School, to cost $1,250,000.

★ Northport, L. I., N. Y. The school board has let contracts for the reconstruction of the high school, at a cost of $930,000.

★ South Bedford, N. Y. The State Education Department has approved plans for a junior-senior high school, to cost $3,000,000.

★ Bids have been received for the new high school in the Connellsville joint district, Connellsville, Pa.

★ Pawnee Rock, Kans. The voters approved a proposal calling for a grade and high school building program, to cost $624,500.

★ Lowville, N. Y. The school board has begun plans for an addition to the academy and central school, at an estimated cost of $1,737,073.

★ Lyndhurst, N. J. The school board has approved preliminary plans for a new senior high school, to cost $1,250,000.

★ Santa Fe, N. Mex. The school board has begun a $3,000,000 school building program, to include 18 projects, including a high school fieldhouse, cafeteria, a gymnasium, and an addition to another school.

★ Great Neck, N. Y. The school board has selected a citizens' committee to assist it in plans for a new junior-senior high school building.

★ Cincinnati, Ohio. The school board has let contracts totaling $1,590,417 for the construction of the Kennedy Junior High School. The building will be completed in 1956.

★ Montgomery, Ala. The school board has begun preliminary plans for four school buildings, to cost $1,250,000. A new senior high school under construction will be completed and in use in 1955.

★ Cresson, Pa. The school board has approved preliminary plans for a junior-senior high school, to cost $1,670,000.

★ Warwick, Pa. The school board of the union school district has sold a bond issue of $2,230,000 for the financing of a consolidated junior-senior high school building. The building to accommodate 1100 pupils in grades seven through twelve, will include 22 classrooms, commercial rooms, three shops for industrial arts, two art rooms, music rooms, a home-economics department, a cafeteria, a two-station gymnasium, a library, faculty and conference rooms.

★ The school board of elementary school dist. No. 28, Northbrook, Ill., is engaged in the construction of an eight-room elementary school. The school, designed by Architects Perkins & Will, provides eight rooms, a kindergarten, and playroom.

★ Lewiston, Idaho. The school board has reported improvements contemplated for the next five-year period, to include a new elementary school, a 16-room addition to the senior high school, and additions to two existing buildings. The several projects will be financed with a bond issue of $900,000.

★ Clinton, Iowa. Approved $750,000 for two elementary schools and one primary school.

★ Hinsdale, Ill. An addition of 26 classrooms is under construction, to be completed in September, 1955. The new addition will accommodate an enrollment of 1800 students, an anticipated figure for 1960. A second addition doubling the cafeteria was completed in 1954.

★ Highland, Ill. The school board of Unit Dist. No. 5 has completed new buildings, including a new school in Highland, a new building in Grantfork, a new school at New Douglas, and a gymnasium and classroom unit at Alhambra Center. The several projects were completed at a cost of $1,200,000.

★ Iowa City, Iowa. Two new elementary schools of ten classrooms each have been dedicated. The schools were given the names of Herbert Hoover and Mark Twain.

★ Berwyn, Ill. The school board of Dist. 100 is engaged in an $800,000 school improvement program to provide gymnasiums for buildings which are not so equipped, to install facilities for home arts and industrial arts in seven buildings, and new classrooms in five buildings.

★ Dallas, Tex. The school board has voted to double the size of an elementary school completed about two months ago. The Gabe Allen School, originally built to house 600 students, and opened last September, is overcrowded and must be doubled in size to care for 1200 pupils.

★ The school board of Dallas, Tex., has decided to delay action on a $35,000,000 bond issue until May, 1955, to give preference to the proposed educational television station. The board did not want the bond issue to be voted on at the time the television question is placed before the voters.

★ Wallingford, Conn. The school board has begun preliminary plans for the construction of a high school, to cost about $2,200,000.

New Research Building of Wyandotte Chemicals Corporation, Wyandotte, Michigan.

One of Wyandotte's Laboratories showing Kewaunee Equipment with KemROCK Tops.

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SCHOOL BOARD NEWS

★ Gretna, La. An act which would have given Jefferson parish a five-man school board was recently defeated in a parish referendum. Jefferson's current board with 18 members is one of the largest in the state.

★ Elmhurst, Ill. The school board of Dist. No. 46 has completed a two-year project involving the writing of school board policies and procedures. The booklet is issued in loose-leaf form for ready access.

★ Supt. Philip J. Hickey, of St. Louis, Mo., has announced the setting up of new districts for the city's public high schools, under a plan to integrate high school students February 1. With some exceptions, the students will attend high schools within their new districts when the second semester opens in February. Final stage of the integration plan will be the integrating of the elementary schools in September, 1955.

★ New York, N. Y. Supt. William Jansen has suggested that the city's public schools be closed on holydays. He contended that so many teachers are absent for religious observance on holydays that it is impossible to run the schools safely. He pointed out that in some sections, most teachers and principals are absent, but most pupils report for classes. In other sections, all of the pupils are absent, but a good proportion of the teachers report for duty.

★ Ambler, Pa. A new method of marking pupils' work has been adopted at the suggestion of the parent-teacher association. In place of the usual marking method, pupils will be marked with S, to indicate strength, skill, or knowledge; N, to show normal development; W, to denote weakness and need for improvement; I, to indicate improvement. The report will be used in grades one to six, four times a year.

★ Preston, Idaho. The administrative department has completed the revision of the report cards used in the lower grades. The cards are divided into two parts (1) citizenship development, and (2) classroom achievement.

★ San Antonio, Tex. The school board has announced that the independent school district has been increased from 36 square miles to approximately 80 square miles, through the annexation of adjacent school districts.

★ Supt. John M. Hickey, of Erie, Pa., has compiled the annual accident report for the year 1953–54 showing the number and kind of accidents, both in school buildings and on the school grounds. The report lists a total of 81 accidents in school buildings, 76 on the school grounds, and 2 to and from school. The total number of accidents, exclusive of football, in 1953–54 was 113, as compared with 123 the previous year.

★ Wilmette, Ill. The school board of Dist. 39 has decided to continue the plan of dismissing the schools three or four afternoons during the term to permit the faculty to work on curriculum revisions. The first afternoon under the plan was conducted December 3.

The school board, faced this year with increased enrollments and increased bus loads, has begun a program of increasing the bus sizes. Under the plan, the board is using 73-passenger "pusher type" buses exclusively. These buses offer increased load capacity and are suitable for use on paved routes and short hauls. Two buses have been placed in service to date.

★ Creve Coeur, Ill. The school board, the parent-teacher committees, and the teaching staff have joined in a project to evaluate school conditions and to plan new services for the children for the school district. At the first meeting plans were completed for the citizenship awards to be given in the spring. It is expected that the agenda will include the discussion of problems closely connected with pupil and teacher welfare.

★ Chicago, Ill. The Chicago Teachers' Union has reported that 85 per cent fo the 4000 high school teachers have signed petitions demanding a reduction in the school working dav. The Union wants the hours cut from 7 hours to 6 hours and 45 minutes.

★ Winona, Minn. The school board has proposed the introduction of a course in electronics in the high school vocational program. The board believes that a local need exists for additional persons with electronics training and that it offers expanding employment opportunities for trained students.

★ Glencoe, Ill. The board of education will shortly select a site for a proposed new school. Dr. Calvin Grieder, of Boulder, Colo., is making a site survey.

★ The school board of Potlatch, Idaho, has completed a new elementary school, at a cost of $250,000. The school contains a gymnasium and a cafeteria and kitchen.

★ Kalamazoo, Mich. The board of education has approved plans for a four-room primary school for pupils from kindergarten through the third grade. The new South Westnedge Elementary School, completed in September, 1954, accommodates 500 children.

★ The school board of Muncie, Ind., on November 7, dedicated the new Longfellow elementary school. The building, one story in height, contains a library and a gymnasium.

★ The school board of Okanogan, Wash., has begun preliminary plans for the construction of a physical education plant, to accommodate 1200 persons, and to cost $225,000. The project will be financed with a bond issue, to be approved by the voters.

★ Reading, Ohio. The school board has appointed a citizens' committee to work with it in planning a new school, to cost about $1,000,000.

★ Des Moines, Iowa. The school board has continued its present policy regarding the use of school buildings which bans the use of schools by religious groups.

★ A staff committee of the public schools at Jackson, Mich., recently completed a study of the best organizational structures for school systems comprising 11,000 students from kindergarten through junior college. The committee has now developed a simple organizational chart, supplemented by a job analysis of each administrative and supervisory position.

The staff service provisions make possible the development of a school program more closely articulated from level to level, in accordance with the theory that there should be close articulation between elementary and secondary schools. The problem of horizontal integration will be a function of the services of the director of instruction and the subject field co-ordinators.

SCHOOL PLANNING INSTITUTE

The first International Institute of School Planning, to be located at Indiana University, Bloomington, Ind., seeks to find better ways to build and equip the 820,000 new classrooms needed by 1960.

The organization projected last spring and representative of all elements of the school building and equipment industry, will be a center for testing and research in all the factors conducive to the mental and physical development of students in elementary, secondary, and college classrooms.

The Institute, as organized, will study methods and equipment for control of daylight, artificial light, heating, ventilation, sound, schoolroom decoration, school seating, and educational aids. The members of the Institute are:

Left to right, seated: Herman B. Wells, Milton Clamage, J. McWilliams Stone, Robert L. Shoemaker, Alvin E. Meyer, F. I. Wilson, Darell B. Harmon, Edward D. James, and Prof. Paul W. Seagers.

Standing: C. A. Winkelhoke, J. R. Nicholson, Hugh Bersie, Jerry W. Martin, Wayne Jervis, John M. Ziv, K. H. Cunningham, Z. A. Marsh, and E. E. Higgins.

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School Administration News

DUTIES OF EDUCATIONAL COUNCIL

The administrative department of the Wilmington, Del., public schools has adopted a revised edition of its booklet on Administrative Organization, setting up six duties of the Administrative Council. These duties are listed below:

1. *Responsibility:* The Educational Council is responsible to the director of instruction and must report to him.

2. *Function:* The formulation of the philosophy, policies, principles, and objectives essential to a sound educational program must be carried out.

3. *Duties:* (1) To analyze the educational interests and needs of the city and to recommend the means through which they may be met; (2) to recommend the instructional program to be established at all levels; (3) to prepare recommendations to the director and the Council suggesting procedures designed to implement the program desired; (4) to recommend policies for the integration and coordination of the program; (5) to recommend policies governing the examination and evaluation of the program now in effect and to determine its effectiveness in achieving its purpose; (6) to suggest ways and means of improving the educational program; (7) to recommend to the Committee on Professional Growth desirable steps in the development of greater professional competence among the staff; (8) to suggest ways and means of demonstrating the power of education to develop competent citizens, thus gaining public understanding, co-operation, and support.

BUSINESS-INDUSTRY-DAY

The public schools of Erie, Pa., played host to business and industry of the city on Education-Business-Industry Day, November 11, 1954.

Supt. John M. Hickey welcomed the visitors to the schools and explained the educational program for 1954. They spent some time watching boys and girls at work in studying, in learning, in growing as good citizens.

NEW UNIT DISTRICT

A new Unit School Dist. No. 6, just formed at Broadlands, Ill., is composed of the Allerton high school, the Broadlands nonhigh territory, and the former Longview township high schools. In connection with the new district, a board of education has been elected, a book rental system introduced, the school curriculum revised, new teachers appointed, and all buildings repaired. Since these changes have been made Asst. Supt. Thomas E. Richardson reports a greatly increased high school enrollment.

THE BLOOMINGTON PROGRAM

The Bloomington, Ill., schools are carrying on an inclusive program of improvements, recommended in a report of the teachers' summer workshop and of the Educational Advisory Council. The objectives will be to assist the citizens to understand the needs of the public schools, and will incline them to provide funds for needed additional services. An equally important objective will be to implement the findings of the summer workshop which recommended a better program of pupil reporting, a system of evaluating the present instructional program, and an increase in teachers' salaries.

The actual program of work for the year is to include studies of the findings and recommendations of the Educational Advisory Council, and of two survey reports presented by the University of Illinois and a private survey group.

The teachers and supervisors have been requested to carry on their share of the program by (1) continual emphasis on fundamental knowledge and skills and periodic testing to keep students up to standard achievements; (2) to stress good citizenship in practice; and (3) to work for worth-while activities begun and advanced in previous years.

It is expected that the entire program will be evaluated toward the end of the year to determine achievements in each of the respective areas of work.

PRINCIPALS ATTEND

During the school year 1953–54 the Augusta, Kans., board of education invited the principals of the several school buildings to attend its regular monthly meetings. The board members felt that the presence of the principals would afford a broader outlook on various aspects of school activities.

The attendance of these professional people at meetings has proved especially helpful to the board. In addition, the meetings were helpful to the principals, giving them a better appreciation of board problems, policies, and putting them in position to better interpret and carry them out.

Attendance of these people has also proved helpful in a substantial way to the superintendent. It has helped him to build and interpret a sound philosophy of education and to determine and meet the needs of the community in the light of that philosophy.

The experience has been a means of encouragement to principals and superintendent alike, and has helped them to work closer together in the solution of school problems and policies.

REJECT SHORT VACATION

By a majority of more than seven out of ten, Minnesota citizens and school patrons have rejected a suggestion that school vacations be shortened so that children may get more time and attention from teachers.

In a state-wide survey, conducted by a Minnesota poll, a cross-section sample of men and women aged 21 and older was asked to state whether they believed the three-month school vacations are too long, or are not too long. The replies indicated that 75 per cent of all believed vacations were not too long, 21 per cent said they are too long, and one per cent gave qualified opinions, while three per cent made no statement.

A few persons think vacations may be too long for older school children, but that younger pupils need the long vacations; some said in the country areas the vacation is not too long, but in the cities the children have too much time on their hands.

PROVIDE SCHOOL FACILITIES

The school board of Western Springs, Ill., has recently completed a very successful experience with a citizens' committee. The committee worked with the board in setting up a program for needed school facilities and in seeking means of financing the program. The committee has recommended that the board retire its bonds in a five-year period in order to gain its bonding power more rapidly.

will be paid $9,683 to $10,628; those with a

teachers holding a bachelor's degree and in-

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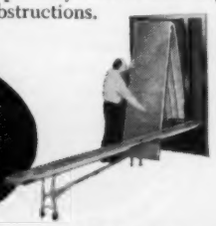

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TEACHERS' SALARIES

GREENWICH SALARY SCHEDULE

The board of education of Greenwich, Conn., has approved a salary schedule for 1955, which is the result of a study conducted by the school staff and the administration, with the assistance of the board and lay groups.

The schedule divides teachers into five groups, with salaries based on the possession of degrees. All new teachers are required to hold degrees. Teachers holding a bachelor's degree begin at $3,400 and go to $6,400 in the thirteenth step. Teachers with a master's degree begin at $3,600 and go to $7,000 in the fourteenth step. Teachers with a master's degree, plus one year, begin at $3,800 and go to $7,600 in the sixteenth step, and teachers having a doctor's degree start at $4,000 and go to $8,200 in the seventeenth step.

LONG BEACH SALARY SCHEDULE

The Long Beach, Calif., board of education has adopted a revised schedule for 1954–55. For teachers with a bachelor's degree or less, depending on experience, new salaries of $3,876 to $5,766 will be paid; for teachers with one year above a bachelor's degree, the salaries are $4,065 to $6,144; for teachers with one year above a master's degree the salaries are $4,254 to $6,711; and for those with a Ph.D. or equivalent, $4,632 to $7,278. Senior high school principals with a master's degree will be paid $9,683 to $10,628; those with a doctor's degree, $10,250 to $11,762; junior high school principals, $7,278 to $9,924.

NEW SALARIES

★ The board of education of Atlanta, Ga., has adopted a new salary schedule, calling for a minimum salary of $2,520 and a maximum of $4,680 for teachers with a bachelor's degree. Teachers holding a master's degree will be paid a minimum salary of $2,820 and a maximum of $5,280.

★ San Antonio, Tex. The board of education has adopted a salary schedule for teachers and administrators for the year 1954–55. The salaries of teachers were raised from $300 to $405, and those of administrators by the same percentage. The minimum salary is $3000 and the maximum $5,200.

★ The school board of Peoria, Ill., has authorized deficit financing not to exceed $350,000 for the 1954–55 educational fund to give all school employees salary increases. All certificated employees received an across-the-board increase of $500. Secretaries, clerks, custodians, maintenance workers received increases ranging from $150 to $525.

★ Meridan, Conn. The school board has increased its budget for salaries of the school staff. The new budget provides each teacher, principal, and supervisor with a $500 salary increase, and starts new teachers at $3,400. Teachers who have reached their maximums will be paid a $500 increase and additional increases during the next three years to raise the maximum pay to $6,000 for four years of college.

★ East Islip, N. Y. The school board has adopted a new salary schedule for 1955, calling for a beginning salary of $3,400 for teachers holding a bachelor's degree and increases up to $6,200 in a period of 16 years. For teachers holding a master's degree the salaries are $3,600 to $6,400. For teachers with a graduate credit beyond a master's degree the salaries are $3,800 to $6,600.

★ Mansfield, Mass. All members of the teaching staff have been given salary increases of $300 for the year 1955. In addition they will receive a $100 salary increment for the year if they have obtained college credits

★ South Portland, Me. The school board has raised the maximum salary for teachers by $100, effective next September.

★ The New Jersey Senate has approved a $500 increase in the annual minimum salary of teachers. Under the schedule, teachers will receive a starting salary of $3,000 per year.

PTA MEETING

At Mount Prospect, Ill., the board of education furnished the entire program for the October meeting of the local Parent-Teacher Association. Every member of the board participated in a panel discussion, with each member speaking on a certain phase of school business.

To add emphasis to the topics a number of charts and graphs were shown. The charts indicated that the school enrollment had tripled in six years. Other charts showed that the tax evaluation had scarcely doubled in the same period.

The discussions included tax rate increases, decreases in valuation per pupil, bonding power, crowded school conditions, new building needs, and other topics. A question period was conducted at the close of the program.

The meeting was commended by the parents as most informative and worth while.

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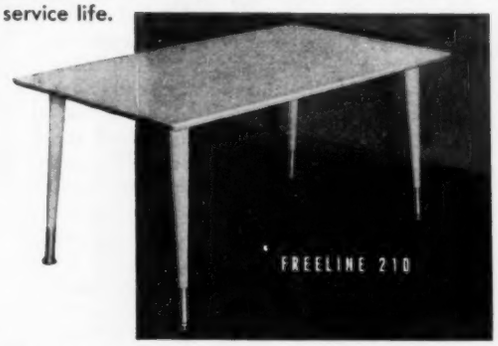

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BREAK FOR TAXPAYERS

(Continued from page 70)

with disturbing regularity. Hence. we pay little attention to the reputations of city and school officials of the moment. Rather, by looking at the record over a span of many years, we try to learn and understand the character of the community at large. This is to a considerable extent revealed in past policy decisions and is not so difficult a task as it might appear. There are two broad avenues of inquiry; one is the record of debt, the other is the budget record.

In connection with the debt record, we look beyond a "no default" certificate. We look at the maturity schedule of outstanding debt; it may indicate a desire to get rid of debt as quickly as possible; it may drag out the payment of debt so as to make it politically painless. We examine the purposes of past bond issues. Recurrent refunding of maturing bonds may indicate lack of disposition to face up to responsibilities or realities. The use of public credit for luxury services as distinct from vital public works may indicate an attitude of easy come, easy go. Recurrent use of capital funds for current purposes, usually identifiable as deficit funding loans, welfare loans or working capital loans and the like, are an indication of some shortcomings in budgeting. For these, and to understand the community at large, it is necessary to look beyond the school records alone and examine also the accounts of the municipality and sometimes the county government as well.

Turning to the budget record, the basic attribute of best municipal management is budgetary stability. Small deficits need not be a subject of criticism unless they are recurring. Sizable current surpluses are nice to have, but they do not necessarily indicate skillful management.

There are other aspects of management which come in for attention. Principal of these is the matter of reporting, a matter about which I will have more to say next month. I will discuss specific methods for improving the financial condition, bettering credit standing, and reducing the cost of necessary borrowing. The availability of intelligent accounting of the stewardship of the governing body influences credit standing importantly.

(To be concluded in February)

★ St. Louis, Mo. The school board has been notified that civilians will be employed by the police department to guard school crossings. They will work three hours daily, five days a week, and will release regular policemen.

★ Indianapolis, Ind. All elementary schools begin operating on a shortened school day, beginning September, 1955. Pupils attending kindergarten through the sixth grades, enter classes at 8:45 a.m., and end classes at 3:15 p.m. Twenty thousand pupils took part in a "pilot" study of the short day program, which was approved by the school board.

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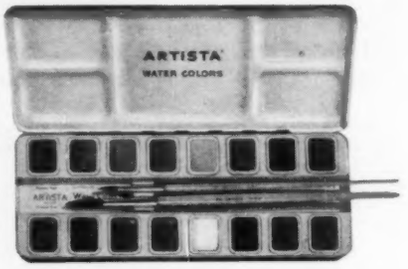

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COMING CONVENTIONS

Jan. 12–13. ***Tennessee School Boards Assn.*** Andrew Jackson Hotel, Nashville, Tenn. Secretary: William B. Rich, 225 Memorial Building, Nashville 3, Tenn. Exhibits: Mr. Rich. 400.

Jan. 17–18. ***Nebraska State School Boards Assn., Inc.*** Cornhusker Hotel, Lincoln, Neb. Secretary: J. C. Porterfield, P. O. Box 1233, Omaha, Neb. Exhibits: Mr. Porterfield. 500.

Jan 18–20. ***Manitoba, Canada, School Trustees Assn.*** Civic Auditorium, Winnipeg, Manitoba, Can. Secretary: Robert Love, Drawer F, Melita, Manitoba, Can. Exhibits: Mr. Love. 700.

Jan. 30–Feb. 1. ***Louisiana School Boards Assn.*** Francis Hotel, Monroe, La. Executive Secretary: Fred G. Thatcher, Box 8986 Univ. Station, Baton Rouge, La. No exhibits. 500.

Feb. 1–3. ***Minnesota School Board Assn.*** Hotel Lowry, St. Paul, Minn. Secretary: W. A. Wettergren, Box 367, St. Peter, Minn. Exhibits: Mr. Wettergren. 3000.

Feb. 19–23. ***National Assn. of Secondary School Principals*** (*NEA*). *Haddon Hall*-Chalfonte, Atlantic City, N. J. Exhibits.

Feb. 24–26. ***National School Boards Assn.*** Jefferson Hotel, St. Louis, Mo. Secretary: Edward M. Tuttle, 450 E. Ohio St., Chicago, Ill. No exhibits. 1500.

American Assn. of School Administrators. Regionals: *Feb. 26–Mar. 2.* Kiel Auditorium, St. Louis Mo. Exhibits.

Mar. 12–16. City Auditorium, Denver, Colo. Exhibits.

Apr. 2–6. Public Auditorium, Cleveland, Ohio. Exhibits. Executive Secretary: Dr. Worth McClure, 1201 — 16th Street, N.W., Washington 6, D. C. Exhibits: Dr. Richard E. Carpenter, Director of Business, 1201 — 16th St., N.W., Washington 6, D. C. 20,000 total.

Feb or Mar. (date undecided). ***Idaho School Trustees Assn.*** Boise Junior College, Boise, Idaho. Secretary: J. C. Eddy, 112 North Garden, Boise, Idaho. No exhibits. 175.

DISMISSAL APPROVED

The dismissal of Solomon Haas, a teacher in the Philadelphia public schools, dismissed by the board for alleged membership in the Communist party, has been affirmed by Dr. F. B. Haas. Pennsylvania State Superintendent of Public Instruction.

The approval carries with it the confirmation of the dismissals of some 20 odd other teachers who, like Haas, refused to answer questions concerning their loyalty to Supt. Louis P. Hoyer of the Philadelphia schools and to a Congressional Committee which held a hearing in the city.

The charges against Haas were incompetency and persistent and willful violation of the school laws of the Commonwealth of Pennsylvania.

The Philadelphia board of education has for four years past investigated charges against a number of teachers who were alleged to be Communists and who refused to testify when questioned by Superintendent Hoyer.

LIFTS LID ON SCHOOL LOANS

The New York State Board of Equalization and Assessment has announced new equalization rates for 932 towns that will, in practically all cases, result in an increase in the borrowing power available to the town governments. More than 2000 school districts in these towns will be similarly affected.

Under the state constitution, towns can borrow up to 7 per cent of the full value of their taxable real property, with full value determined by applying the equalization rates to the value as assessed locally.

In the cases where the borrowing is for school building purposes, the new rates make it easier, while not actually raising a debt limit. The new lower rates will permit school districts with pressing debt limits, to authorize new construction more easily. The new rates range from a high of 67 per cent to a low of 5 per cent. In one town in Oswego County the rate dropped from 80 to 19 per cent.

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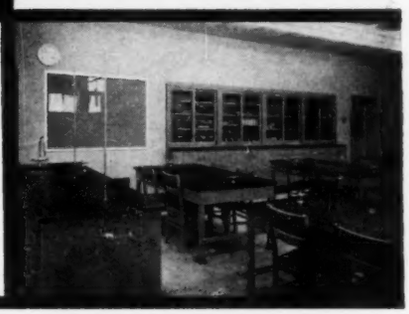

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CONSTRUCTION

During the month of November, 1954, Dodge reported contracts let, in 37 states east of the Rocky Mountains, for 439 school buildings, at a total cost of $139,539,000.

During the same month contracts were let in 11 western states, for 110 school buildings, at a cost of $48,536,671. Additional buildings, in the number of 137, were reported in preliminary stages, to cost $95,032,101.

SCHOOL BOND SALES

During the month of November, school bonds amounting to $145,021,180 were sold.

California	$12,997,000	New Jersey	$19,877,000
Florida	17,523,000	New York	12,194,000
Illinois	10,879,000	Ohio	6,008,000
Indiana	2,831,000	Pennsylvania	3,653,000
Iowa	15,090,000	Wisconsin	8,135,000
Michigan	3,856,000		

The net interest cost of 20 bonds, as of the end of November, was 2.31 per cent.

SCHOOL FINANCE

★ The board of education of Kalamazoo, Mich., has issued its annual financial report for 1953–54, showing total general fund receipts of $3,961,748.63, and total general fund disbursements of $3,984,527.79. The total building and site fund which amounted to $904,530.28 includes current and delinquent taxes, tax anticipation notes, and tax sales. The building disbursements amounted to $872,207.20.

★ Elyria, Ohio. The voters have approved the renewal of a 5-mill operating levy and an additional 2½-mill operating levy. The additional levy has made it possible for the schools to continue the present salary schedule.

★ Supt. Hobart Corning, of Washington, D. C., has petitioned the school board for smaller class sizes in the district grade schools. He has suggested a change in the board rules to set up a new 30–1 pupil-teacher ratio to replace the outmoded 36–1 standard. A study made by Supt. Corning, based on early fall enrollments, showed that between 300 and 350 teachers are needed in grade schools alone. This expansion would cost $1,518,000.

CREDIT EXCELLENT

The school system of Rock Island, Ill., is in good financial situation and its credit is excellent. Supt. Earl H. Hanson, in his annual report for 1953–54, calls attention to the fact that when the building bonds were sold the average interest rate over the nation was 2½ per cent. The bidding for the Rock Island bonds was keen because of the credit of the district, and the bonds were sold at 1.905 per cent.

Also, it is noted that the building and education funds are in good condition. In 1954–55 it is planned to increase the school tax rate in order to meet the demands of increased enrollment and the employment of new teachers.

ADMINISTRATION BUILDING

The school board of Dallas, Tex., has decided to rebuild the present school administration building. The oldest portion of the building will be razed. An addition costing $384,225 has been completed in place of an old section which was eliminated some time ago.

ADOPT HUGE BUDGET

The Chicago board of education has adopted its 1955 budget calling for 166 million dollars, or an increase of 10 million dollars over 1954. It is expected that the over-all tax rate for school purposes will be reduced to $1.39 per $100 assessed valuation, a one cent decrease from 1954. The board has filed a claim for 20.2 million dollars in state aid to education for 1955.

NATIONAL STATISTICS OF IMPORTANCE TO SCHOOLS*

Item	*Date*	*Latest Figure*	*Previous Month*
School Building Construction[1]	Nov., 1954	$139,539,000	$154,462,000
School Building Construction[2]	Nov., 1954	48,536,671	16,454,917[6]
Total School Bond Sales[3]	Oct., 1954	145,021,180	160,623,000
Latest Price, Twenty Bonds[3]	Nov. 24	2.31%	2.33%
Construction Cost Index[4]	Nov., 1954	598	597
U. S. Consumers' Prices[5]	Sept., 1954	114.7	115.0
Wholesale Price Index[5]	Nov. 23	109.5	109.6

*Compiled Dec. 7, 1954.
[1]Dodge figures for 37 states east of Rocky Mts.
[2]11 states west of Rocky Mts.
[3]Bond Buyer.
[4]American Appraisal Co., Milwaukee.
[5]U. S. Dept. of Labor.
[6]Correction of last month's erroneous figure.

LITE-LOCK Shades!

Gain full daylight control and protection! Draper Lite-Lock Shades are new and different . . . efficiently darkening plastic dome and glass block skylights. The shades are pulley-controlled . . . manually, or with the use of a window pole to engage the cord ring. The light-tight hinged cover roller box is designed for easy installation and access. Steel side channels support and enclose shade to stop light leakage.

LITE-LOCK Skylight Shades are stiffened by steel stays. They are available in black or tan and black duplex materials for best darkening.

- Flexible, easy operation
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- Self-contained as complete unit

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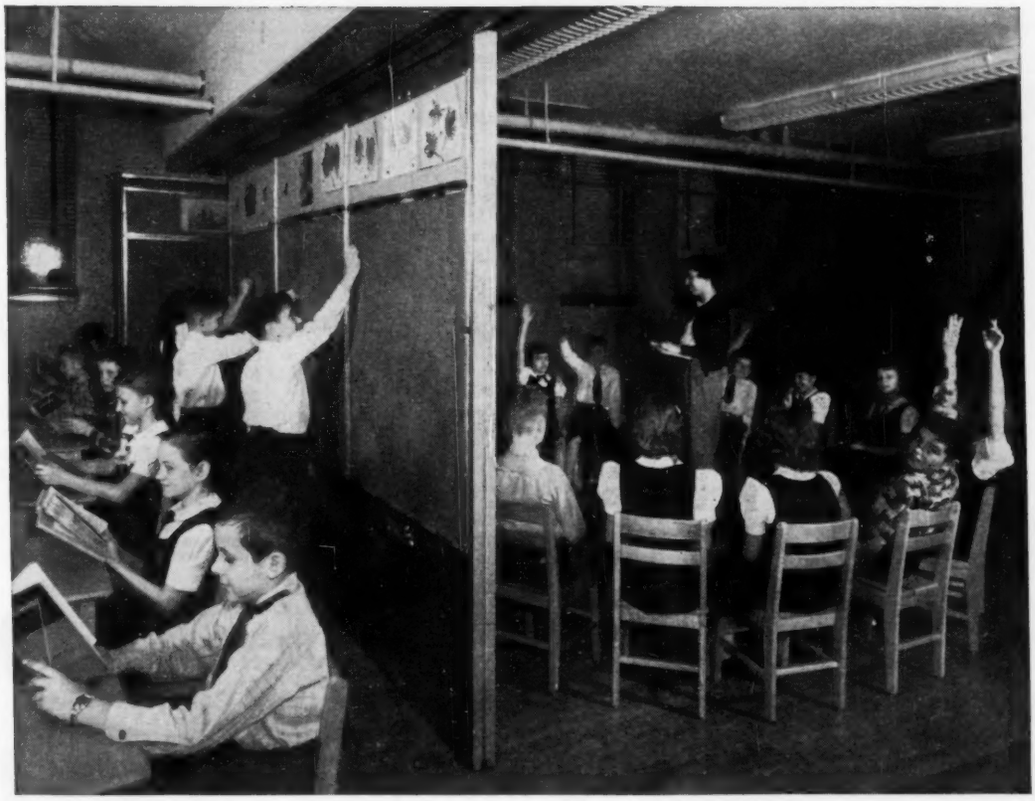
40 decibel

sound reduction now standard in R-W Folding Partitions!



● An R-W 40-Decibel Folding Partition installation in partially closed position. Note 3-inch thickness and absence of floor track, or guides. Partitions available with cork tack boards, chalk boards and chalk troughs.

Once again Richards-Wilcox sets a new high standard of quality—*a sound-retarding value of 40 decibels in R-W Folding Partitions!* Now each partition door is literally a folding wall!

No more noise, no more distracting voices when a large area is temporarily partitioned off into separate rooms. R-W 40-Decibel construction absorbs sounds before they can pass through . . . each R-W Folding Partition Door has a built-in sound-retarding efficiency approximately equal to a 4-inch clay tile plastered wall! Even loud talking is effectively muffled by the acoustically insulated construction of R-W 40-Decibel Partition doors.

With the growing need for every possible square foot of classroom space, ordinary movable partitions are not enough. Pupils and teachers require *quiet* as well as privacy. R-W 40-Decibel Folding Partitions, "the folding wall," provide *both* features *at no increased cost!*

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SPECIAL STUDIES-NEWS

★ San Angelo, Tex. The school board has set aside one meeting each month to study and evaluate the curriculum program. The new plan seeks to better acquaint the board with the operation of the curriculum, to interview teachers, and to study reports.

★ Artesia, N. Mex. The school board has considered plans for a proposed revision of the junior high school curriculum, to give students more opportunity to explore various subjects as a means of selecting the future high school courses.

★ Covington, Ky. A new course in personal economics has been introduced in the Holmes High School to acquaint students with the principles of handling money. The course is elective and is pointed at down-to-earth problems of individuals.

★ New York, N. Y. School messages from the superintendent's office make quick contact with the sprawling city school system. A report made by a civil defense administrator showed that a test telephone message was received in 98 per cent of the city's 768 schools in an hour and a half, and that 80 per cent got the message in less than an hour.

★ Keithsburg, Ill. A course in French has been introduced in the high school with emphasis on conversation.

★ Peoria, Ill. The administrative department has set up broadened programs in music, art, speech, counseling, libraries, and minor sports and employed new staff members to supervise the subjects. New supervisory positions set up for the year are a director of curriculum, a director of pupil services, a supervisor of elementary education, and two co-ordinators for home living and vocational and industrial education. Additional teachers have been employed to reduce class loads and to provide instructors where the enrollment has increased.

★ Downers Grove, Ill. Members of the Future Teachers Club, under a new plan, are employed to work as cadet teacher-clerks in the elementary schools. These future teachers are released from high school classes and serve during their free time in schools where they are needed. The plan has a twofold purpose: (1) to give the regular teacher with large classes a little assistance; and (2) to give the future teacher practical classroom experience.

★ North Brook, Ill. As a part of the in-service program for teachers in Elementary School Dist. 28, the school staff has organized on an interbuilding grade level basis. Primary grade teachers, under the plan, meet twice monthly under the direction of Mrs. Ivy Mae King; the intermediate teachers meet under Miss Janet Harvey, and the upper grade teachers under the direction of Robert Gentry. At the September and October meetings, the teachers' handbook was studied and discussed, as well as many items relative to the administration of a class. Between Christmas and the spring recess, the grade level groups will meet to discuss pupil evaluation, including a revision of the testing program, mental aptitude testing, and report card evaluation.

★ Ottumwa, Iowa. The school board has adopted a program, under which high school extracurricular activities will be operated during the school year 1954–55. A fund of $2,000 is appropriated and added to the funds for dramatics, speech, vocal and instrumental music. The amount each is to receive is to be determined by the principal. No activity money may be used for repair, upkeep, or alteration of any part of the school plant.

★ A scholarship plan for deserving North Dakota students has been adopted by the State Board of Higher Education. The plan makes attendance at state colleges possible for students who otherwise might be denied higher education opportunities. Each of the state's nine higher institutions will participate in the plan, beginning with the fall term of 1955.

★ The Kearney, Neb., school board has purchased a tachistoscope, at a cost of $465, for testing pupils' reading ability. The device will be used in the junior high school.

ADMINISTRATORS

The University of Denver was host, December 12 to 15, to the fourth annual Southwestern Conference on Improving Preparation Programs for School Administrators.

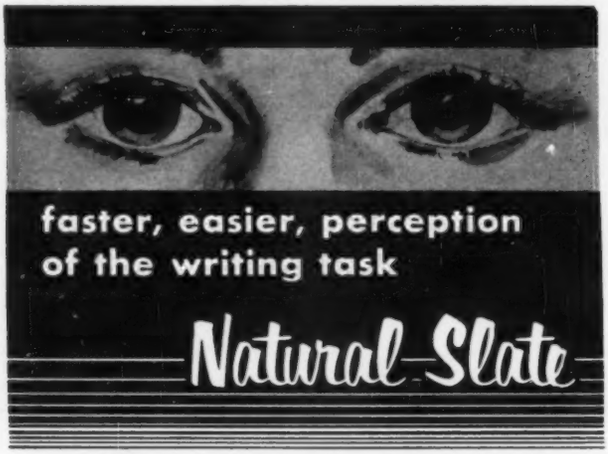
The conference, which was under the direction of Prof. Harold E. Moore, was a rotating program enabling all participants to consider each section of the report and to play a part in the formulation of the final report. The conference was divided into ten groups.

The program included a number of important topics. Among these were "The Place of Objectives in Program Planning"; "The Local School Administrator Looks at Preparation Program"; "Planning for CPEA in Years to Come"; and "Evaluation of Findings."

MR. SPRATT HONORED

Elliott C. (Jack) Spratt, secretary of the Hillyard Chemical Company of St. Joseph, Mo., was made a lifetime member of the Ohio Association of Public School Employees, in Toledo, November 26, at the fifteenth annual convention of the Association.

Mr. Spratt's devoted interest and his efficient efforts in behalf of the Ohio schools was stated as the reason for the honor. In accepting, Mr. Spratt pledged his continuing interest and cooperation with the Association and its work.



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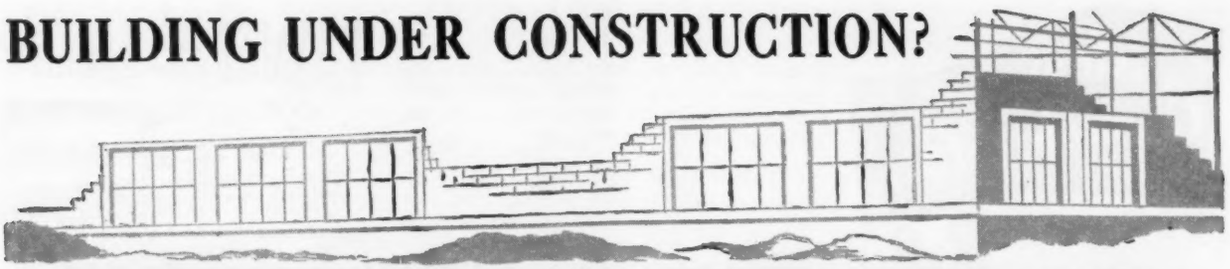
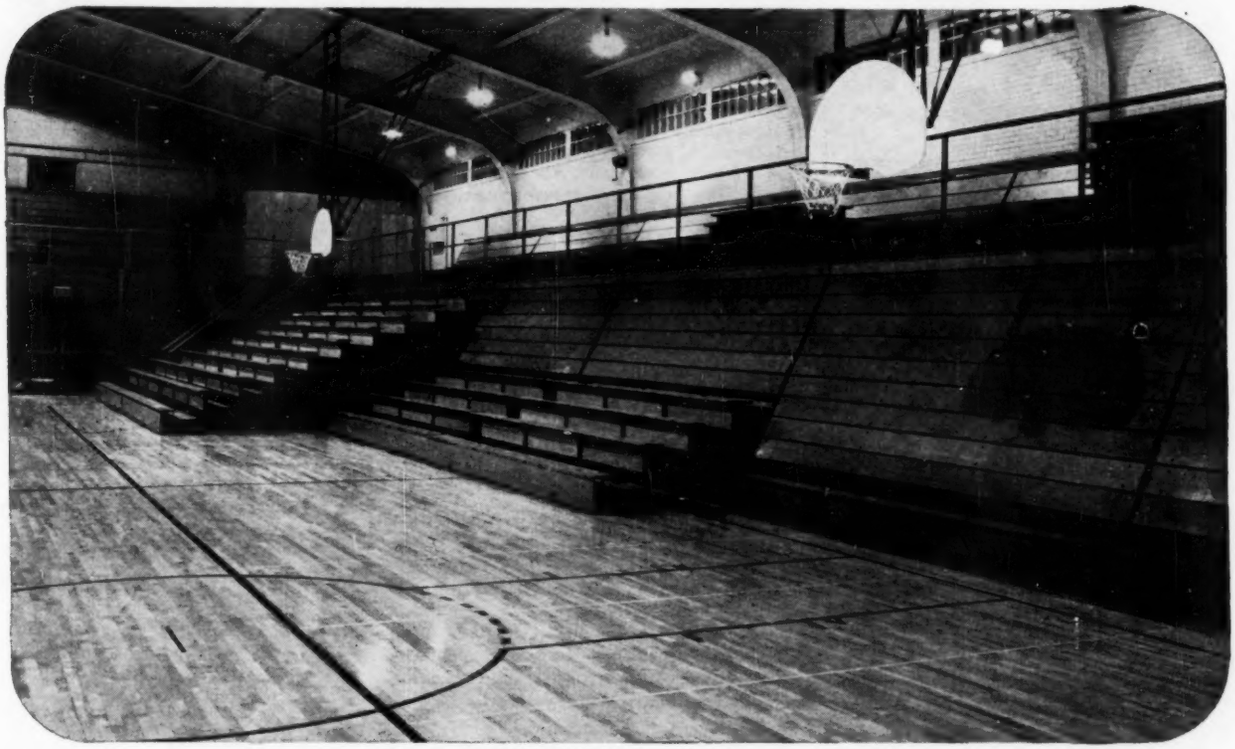
BUILDING UNDER CONSTRUCTION?





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Carefully engineered and custom-built to meet your specifications, *Universal* Roll-A-Way Stands are ideal for large capacity or small. They are compact, yet roomy and comfortable... neat and attractive... exceptionally strong and safe. When not in use, they may be folded back to the walls, providing approximately 70% more floor space for regular gymnasium activities. Write for free catalog and list of *Universal* installations.

The standard style *Universal* Roll-A-Way provides a continuous, all-purpose seat at front when stands are closed, as shown above. This row is locked firmly in place and occupies only a small amount of extra depth. A convenient seat for the basketball squad during chalk talks, for physical education classes, etc.; particularly useful for school parties and dances in the gym.

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DISTRICT BORROWING

(Concluded from page 5)

excess of that permitted by the State Constitution, the court held the proposed agreements to be invalid. Accordingly, it reversed the trial court judgment.

Significance of the Case

The opinion here was clear that the court did not believe the school district had the authority to enter into a lease and re-lease agreement, even for the purpose of constructing a needed school, where the net result would be the incurring, on the part of the district, of an indebtedness in excess of that imposed by existing law — in this case, by the State Constitution. This principle would be undoubtedly valid in any jurisdiction.

As it related to the operations of Wisconsin school boards specifically, the opinion also suggests the following principles as being pertinent:

1. Procedures whereby corporations are obligated to construct new school buildings on land leased from school districts, where the costs of construction are to be financed by the mortgaging of the corporation's leasehold interest, and where the land and buildings are then re-leased back to the district, must be viewed as one transaction, not as isolated separate occurrences.

2. Where a school district requires the use of certain of its land for school purposes, but leases such land to a corporation formed for the purpose of erecting a school building thereon, the mortgaging of the corporation's leasehold interest in such land creates both a lien on the district property and a formal indebtedness on the part of the district.

While the opinion in this case made no specific, *positive* contribution to the particular problem facing the joint school district board here concerned, it nevertheless did make a significant contribution to the state-wide problem as a whole. This it did by pointing out that while the relief sought was not to come through the statutory device here employed, the needed relief would surely come, if the people so desired, "through the deliberate and thoughtful processes of constitutional amendment."

PERSONAL NEWS OF SCHOOL BOARDS

★ MATTHEW R. SUTHERLAND has been elected a member of the Orleans parish school board at New Orleans, La.

★ JOHN H. SWENSON, executive director of the Colorado Association of School Boards, has been appointed field representative for the White House Conference, to be held in November, 1955.

★ M. W. GLOSSERMAN, president of the Lockhart, Tex., school board, has been elected president of the Texas School Boards Association.

★ ROLAND B. HEWITT is the new president of the board at Kansas City, Mo. HARRY C. CLARK was re-elected vice-president.

★ TED L. CROSTHWAITE, formerly director of purchases and stores for the board of education of Louisville, Ky., has been appointed Director of Instructional Services.

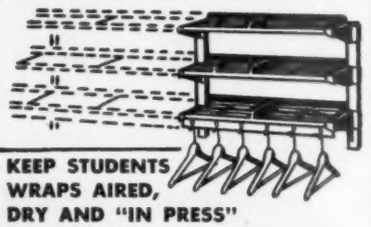
★ PRESIDENT JUNIUS P. CALIFF, of the school board of Rock Island, Ill., has been elected a member of the executive committee of the Illinois Association of School Administrators.

★ WILLIAM T. LOBLAW is the new superintendent of schools of the Warren township high school, Gurnee, Ill. He succeeds D. W. Thompson.

★ LEON O. SMITH, of Omaha, Neb., has been elected county superintendent of schools for Douglas County, Neb.

★ R. F. FALL is the new county superintendent of Kankakee County, Ill. MILDRED M. MENARD is assistant county superintendent.

VALET HAT and COAT RACKS®



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Valet Wall Racks hold students wraps in a sanitary, orderly and efficient manner—open to light and air, drying on hangers. How different in wet weather; no wraps crumpled into dark lockers or lunches soggy from wet hats and mittens. With Valet Racks each student has his ventilated shelf space, each garment is held apart from all others on a spaced hanger.

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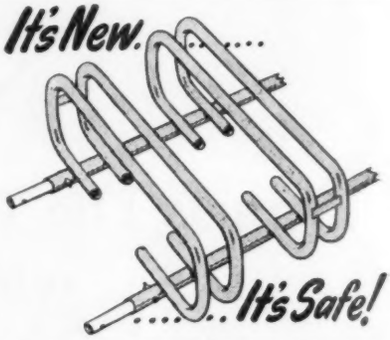

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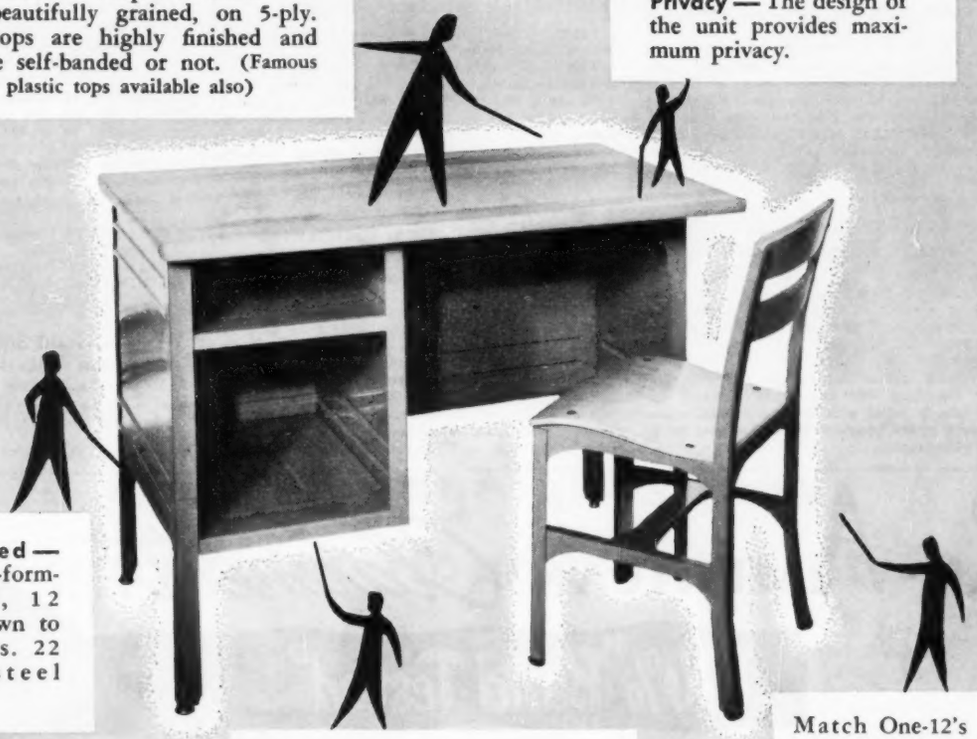

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NEW PUBLICATIONS for SCHOOL EXECUTIVES

Planning Tomorrow's Secondary Schools

Compiled by James D. MacConnell and Jon S. Peters. Paper, 63 pp. Published by the School Planning Laboratory, School of Education, Stanford University, Stanford, Calif.

A report of a conference on school planning, held in the summer of 1954, at Stanford, and devoted to the problems of secondary education, including inflated building costs and the difficulty of obtaining financial support. Emphasis is placed on the relationship between the educational program and the physical plant, on evaluation, on specifications, on planning special areas, and on school construction economies.

The report restates in modern terms many of the accepted principles of school site selection, preliminary educational planning, adaptation of plan to curriculum, the use of new ideas in lighting and ventilation, and acoustics. The really new materials are plans and descriptions of new construction methods, homemaking and science laboratories, business education room, and academic rooms — all in California.

Planning and Designing the Multipurpose Room in Elementary Schools

Prepared by James L. Taylor. Paper, 48 pp. U. S. Office of Education, Washington 25, D. C.

A report of a study of multipurpose rooms, their meaning, characteristics, and uses as indicated in survey reports from all states and territories. The booklet points out that the multipurpose room is a new and popular means for meeting the new demands for functional and economical planning in elementary schools faced with increasing enrollments and a crowded school program. Well illustrated with plans and photographs.

Prefabricated Schools

School Plant Studies. By Alonzo J. Harriman, AIA. Paper, 4 pp. American Institute of Architects, Washington 6, D. C.

This pamphlet illustrates and describes various types of prefabricated schools in a wide range of sizes of units, and using light-steel sections, precision concrete, wood, and plywood. The systems described are based on usual architectural services for design of buildings, to suit site, program, and design.

Architectural Woodwork

A series of technical pamphlets. Published by Architectural Woodwork Institute, 332 So. Michigan Ave., Chicago 4, Ill.

The pamphlets thus far published include technical construction details of windows, classroom storage cabinets, home-economics built-in cabinets, classroom windows in wood, and flush paneling for school buildings.

The Portable Standard Classroom

Paper, 6 pp. Prepared and issued by the public schools of San Diego, Calif.

This booklet points to the one completely successful answer to the problem of housing runaway school enrollments. Photographs and floor plans are used to indicate how it is possible to place classrooms in areas where they are most needed, to reduce the number of classes on double session, and to stretch the building funds to provide more classrooms.

School Building Unit Costs and Consumption of Critical Materials

Compiled by N. E. Viles and Ray L. Hamon. Published by the U. S. Office of Education, Washington 25, D. C.

This useful report on school building unit costs is limited to new school buildings erected in 1951–52. It includes public elementary and secondary schools, and covers types of construction, square foot areas, classrooms and special classrooms, time of construction, and costs of projects. The cost data includes costs of single and multi-story school buildings, costs of urban and nonurban buildings, costs of buildings according to size, and general contract award costs.

A Valley and a Decision: Greater Corning Area

By Cyril G. Sargent, Director of Center for Field Studies. Paper, 78 pp. Harvard Graduate School of Education, Cambridge 38, Mass.

This study of school facilities embraces 62 small school districts in a great valley in northern New York State, of which the city of Corning is the center. The valley divides itself naturally into seven areas and these provide for the education of 9200 children in 49 elementary and three high schools. This very thorough study included an analysis of such important related factors as population, future school enrollments, educational programs and services, legal aspects of the problem, and above all, costs. Four possible redistricting problems which would make possible the abandonment of most of the one-room schools and the construction of large central grade and high schools, were proposed for educational advantages and cost comparison. The establishment of a single "city school district" for the entire area was accepted in the summer of 1954 and has been under way since September.

The recommended program for new construction envisions the completion of the total building program of $12,470,000 by 1960. A 30-year bonding schedule is suggested, at an interest rate of 3 per cent. The cost of this schedule for both principal and interest is estimated at $1,497,295. Equal opportunities in equally acceptable school plants, at a low tax rate, will be the outcome of the reorganization.

Room That Helps Good Teaching

By Robert Gilchrist and Dorothy M. Swatszel. 4 pp. The Educational Trend, New London, Conn.

The characteristics of good physical environment, how it can be developed, and criteria for evaluating a good classroom.

What is Good School Architecture?

School Plant Studies. Paper, 6 pp. By Eric Pawley, AIA. American Institute of Architects, Washington 6, D. C.

One of a series of papers prepared by the AIA

(Concluded on page 113)

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NEW PUBLICATIONS

(Concluded from page 110)

Committee on School Buildings. It discusses building life expectancy, building dollar, true values, human values, stock plans, prefabrication, and solutions. The goal is good and economical architecture, good space for teaching and learning.

Heating our Schools

By the Editor of Coal-Heat. Paper, 8 pp. Coal-Heat Magazine, Chicago, Ill.

A factual discussion of the relative cost and efficiency of coal versus other fuels in the heating of schools.

Effective High School Buildings

Compiled by Pearl A. Wanamaker. Paper, 32 pp. State Department of Education, Olympia, Wash.

A report containing the proceedings of the Washington State School Building Conference and the addresses delivered at the conference.

How Can We Help Our School Boards?

Paper, 60 pp. Working Guide No. 7. National Citizens Commission for the Public Schools, 2 West 45th St., New York 36, N. Y.

One of a series of guidebooks intended to help local groups in working out school problems. Part I is devoted to the school board, how a school board works, and methods of selection of boards; Part II takes up the school board in perspective, powers and duties, relationship to other governmental units, how the board works, and getting the best school boards.

Fire Safe School Buildings

Paper, 21 pp. National Board of Fire Underwriters, New York 38, N. Y.

This pamphlet recommends specific types of construction for making new and old school buildings fire safe, and includes suggestions for better housekeeping, fire drills, and inspections.

Sampling of Schoolhouse Construction

Prepared by Office of County Superintendent of Schools, San Diego, Calif.

This collection of photographs, plans, and technical details of construction embraces 26 school buildings the pick of the best schools in Southern California. The solutions of the special problems of orientation, lighting, and especially flexibility for a broadening instructional program, are worthy of wide study.

School Building in Scotland

I. Primary Schools. Paper, 40 pp. Price, 1s., 6d. Her Majesty's Stationery Office, Edinburgh, Scotland.

This official document sets up standards for school building construction under conditions which require the greatest possible economy. The recommendations include all-purpose rooms, the equivalent of Amercan cafeterias and kitchens, excellent administrative offices, etc.

A Study of Public School Facilities

Conducted by a committee of educators and industrialists. Published by the National Association of Manufacturers, 2 East 48th St., New York 17, N. Y.

This capsule report points out that educational facilities are not keeping pace with the growth in population or with the rise in national income. Serious shortages of teachers and classrooms exist and the situation is getting worse.

The committee in charge of the study estimates that 85,000 new teachers are needed this year, and that only 35,000 teachers were graduated in June. At least 50,000 teachers are needed to take care of increased enrollments. Again, teachers' salaries must be raised to encourage more young people to enter the teaching profession and remain in it. The average salary of teachers in the past year was only $3,605.

The committee points out that much can be done to strengthen the school tax laws at the state and local levels. Poor districts should be assisted in their efforts to provide better educational facilities.

Schools in Transition

By Robin M. Williams, Jr., and Margaret W. Ryan. Cloth, 272 pp., $3. University of North Carolina Press, Chapel Hill, N. C.

This is the second important contribution made by the University of North Carolina Press to the solution of the desegregation problem which has so seriously stirred up the entire South.

The present study embraces experiences of 24 communities bordering the Deep South, as they have moved from racially segregated toward integrated public schools. The investigators were both educators and expert social scholars, and their findings are indeed illuminating. They show clearly that with any amount of good will, the community problems arising out of the education of children of Negro and white races can be solved by unification, to the great benefit not only of the entire communities but of all of the children involved. The present book deserves to be studied by every board of education.

Public School Building Needs in Ohio County, West Virginia

Compiled by W. R. Flesher and John H. Herrick. Paper, 108 pp. Bureau of Educational Research, Ohio State University, Columbus, Ohio.

A report of a survey in Ohio County, West Virginia. The survey, begun in the autumn of 1953, covered the general background and the present status of Ohio county, the nature of the school program, the trends in population; the size, location, and adequacy of the school plant; the financial resources and the funds available for building purposes. It was recommended that all schools be organized on the six-three-three plan and that all remodeling and new construction in the future be based on thorough educational planning. The recommended program calls for one or two new buildings, the remodeling of some twenty odd structures, and the discontinuance of nine buildings unfitted for future use. Of the 30 separate buildings in operation in Ohio County, it is recommended that the number be reduced to 21, a reduction of 30 per cent. The ultimate cost is estimated at 4 million dollars.

School Plant Studies

No. BT 1-12 and BT 1-13. American Institute of Architects, Washington, D. C.

These capsule studies discuss respectively preschool buildings for nursery and kindergarten use and the present-day conceptions for good school architecture.

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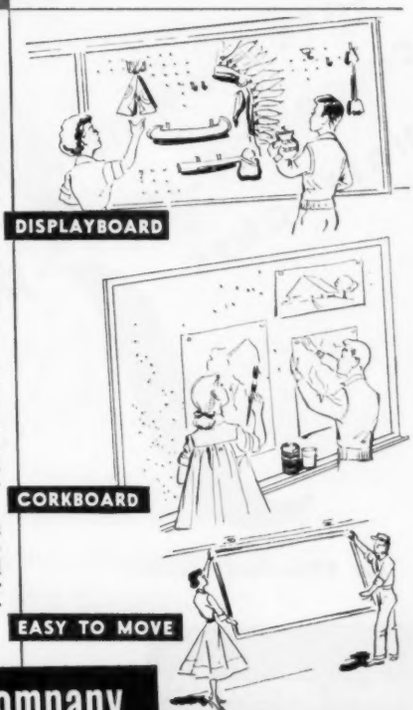

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CHICAGO HEIGHTS ILLINOIS

CLAYTON HIGH SCHOOL

(Concluded from page 43)

classes. Folding bleachers are used throughout — making the balcony space available for badminton, shuffleboard, and other less strenuous sports for students physically under par. The girls' department features a large social room with adjoining kitchen which may be used for interschool social events, but for teaching purposes it offers facilities for modern dance instruction. The boys' department features a room for special therapeutic exercises.

The seating capacity of the gymnasium is approximately 1600 persons.

Construction was underwritten by the proceeds of two bond issues approved by Clayton voters. The first, for one million dollars, was approved on February 4, 1947, by a vote of 691 to 19. The second was approved on December 12, 1950, by a vote of 846 to 79. The total contract cost was $1,596,247, and was within $1,247 of original estimates. The unit cost was slightly less than 80 per cent a cubic foot.

The plant was designed and the construction supervised by Wm. B. Ittner, Inc., Architects and Engineers. The plans for the new Clayton High School won one of four national awards made in 1952 at a joint exhibition and competition of the American Association of School Administrators and American Institute of Architects, as an outstanding example of contemporary, functional school architecture.

The general contractor for the project was the E. A. Brunson Construction Company of St. Louis, Mo.

UNLEASHED SAVINGS

(Concluded from page 49)

In emphasizing the relative importance of factors relating to economy in school construction, it appears that analysis of educational need, method of financing, and efficiency of the design are of major importance. It is entirely conceivable that by elimination of waste in each of these areas school costs could be reduced tremendously — in some cases, perhaps, as much as 40 per cent. Of course, careful selection of methods and materials of construction remains highly important. Study of utilization of facilities is vital and should be included in the analysis of educational needs; and there should be no overlooking of management of bidding and nature of equipment.

THEORY OF SCHOOL DESIGN

(Concluded from page 60)

tion of outdoor and indoor instructional area for utilization. A sloping ceiling aids the downward reflection of agreeably and wholesomely diffused light into the classroom.

The classroom corridor has here been added to the instructional area by simultaneously serving as an exhibition hall, and it also offers room into which ventilated standard lockers may be built in where need be, to practically form an outer wall.

In every region and locality there are many specific problems to be studied by the school architect. They may concern the budget, or the climate, the instructional, administrational, managerial features, or the traditions that prevail in obtainable materials. A careful appreciation of all these conditions and an ability to integrate partial solutions into one over-all design will yield school plants of lasting usefulness. It can only be hoped that diversity will not overgrow the common purpose of education, which, after all, is the harmonization of contemporaries, all those who have the common fate of dwelling simultaneously on this shrunken globe. Our country has not only in budgetary but in many other respects undoubted leadership in education. Whatever we develop in buildings and methods shall become meaningful to our fellow men in less advanced regions. This may not be lost sight of, as education can aim at mutual understanding and peace.

PERSONAL NEWS OF SUPERINTENDENTS

★ JAMES H. WILLIAMS, of Richmond, Calif., has accepted the superintendency at Glendale, where he succeeds N. C. Hayhurst.

★ MRS. RUTH B. WINCH, superintendent of schools in the fourth supervisory district of Chautauqua Co., N. Y., has been elected to the presidency of the New York District Superintendents' Association.

★ FLORENCE ROBERTSON, professor of geophysical engineering at St. Louis University, died at Wichita Falls, Tex., on November 18. She was a graduate of Texas Technological College and obtained a Ph.D. degree from St. Louis University in 1945.

★ JACK RYAN has assumed his duties as superintendent at Alice, Tex.

★ ALVIN L. STODDARD is the new superintendent at Humboldt, S. Dak.

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News of Products for the Schools

TRANE VENTILATOR

One of the featured products in the Trane Company (LaCrosse, Wis.) exhibit at a recent heating and ventilating exposition was the KB Unit Ventilator, especially designed for classroom conditioning. The Kinetic Barrier action of the KB ventilator provides the assurance of comfortable heating coupled with healthful ventilation.

In this unit, outside air is blended with the room air, filtered free of impurities and heated to the desired temperature. The cooling air is gently brought into the room all along the wall, at about window-sill height, and not blasted from a short section of the wall area.

Window downdraft is effectively combated by the Kinetic Barrier Action in Trane ventilators. Air under pressure is forced through the lateral extensions. The air is then discharged through the orifices in the top of extensions with sufficient kinetic energy to assure the induction of large quantities of room air, creating the Kinetic Barrier action. The positive and continuous barrier prevents window downdraft from spilling into the classroom living zone.

(For Further Information Circle Index Code 010)

SAMSONITE LINE

Two of the "new look" Samsonite classroom desks designed by Russel Wright for Shwayder Brothers, Inc., Denver, Colo., introduced recently, are the Book Box and the Open Shelf models. Made from one piece of steel, the Book Box has a rolled top edge which provides rigidity and prevents finger injury. The special design of the adjustable friction hinge allows the book box lid to raise freely but fall easily and slowly to prevent slamming. Counter-sunk rubber bumpers reduce noise in closing the desk lid. The interior contains full-length pencil groove and cleaning holes at the back. The book box is tilted to allow more room for the thighs at the front of the desk, and is finished in metallized baked enamel to match the legs. The Open Shelf model has the same features, with the shelf shaped at an angle for more room at the front.

Book Box (left), Open Shelf

The desk tops are offered in three surfaces: plastic laminated to plywood, solid maple or birch, or maple plywood. Desks come in ten sizes to accompany graduating chair heights, and are produced in four colors: turquoise, rust red, cocoa brown, and light gray.

(For Further Information Circle Index Code 011)

UNDERWOOD ADDS COLOR

Continuing its swing to color, Underwood Corporation, New York, announces that effective immediately orders are being taken for Underwood electric typewriters in three color styles. In addition to the standard shade of gray, the company's Finger-Flite electric typewriter bodies may now be purchased in two-tone ivy green, Brewster green, and two-tone tan.

Chosen to blend with virtually any office motif, the non-glare colors were first seen by the public on the new Underwood portable line introduced earlier this year. Enthusiastic reception of the portables prompted the company to accent color in its electric typewriters.

(For Further Information Circle Index Code 012)

GRIGGS STUDY DESK

A new Airliner Study Top Desk, providing a large, roomy desk top for comfortable work, has been introduced by Griggs Equipment Co., Belton, Tex.

The sturdy, lightweight design features a hardwood plywood desk top measuring 23- by 17-inches, a comfortable curved plywood seat and back, on tubular steel frame. The front legs of the Study Top Desk extend from the desk top to the floor, giving positive support and preventing tipping.

The No. 780 Airliner Study Top Desk is available in five metal and two wood finishes, with desk tops of colorful, enduring GE Textolite also available.

(For Further Information Circle Index Code 013)

RECESSED DRYER

The Electric-Aire Engineering Corp., Chicago, Ill., has added a new electric hand dryer to its line, this one designed for recessed installation in washrooms. Projecting 3¼ inches from the wall, the "C" Model Recessed Hand Dryer is installed in a steel box set into the wall during construction. Dryer mechanism and cover plates are installed after wall completion.

Featured improvements of the new dryer are: increased air velocity and volume, a permanent air filter that can be quickly brushed without removing—a valuable feature; life-lubricated ball bearings and circuit breaker to prevent burned-out heating elements combine to reduce maintenance by at least 75 per cent on former models.

(For Further Information Circle Index Code 014)

ACOUSTICAL PRODUCTS

Two new sound conditioning products, designed for use in a wide variety of buildings, were announced recently by The Celotex Corporation, Chicago, Ill. The products are: Steelacoustic, a white enameled steel panel that combines noise reduction, incombustibility, economy, and easy maintenance; and Lumicel and Acousti-Lux, a set of plastic panels for translucent ceilings which provide high light levels without glare.

Steelacoustic is installed on the Celotex "T" and "T" suspension system, a suspended ceiling grid device also finished in white baked enamel. Hold-down clips fasten the panels to the grids, but permit easy access to the area above when servicing is needed. Recessed light fixtures air diffusers, sprinker heads and other outlets can be easily incorporated into the plan. Made of cold rolled zinc bond steel, the panels are 24-by-24-inches. They can be washed or painted repeatedly with no effect on their sound absorbency. Sound passes through the steel facing and into the absorbent material laminated behind it.

Lumicel is a plastic panel for translucent ceiling installations. Acousti-Lux is a pair of panels, also of plastic, welded together at their perimeters. Diaphragmatic action of air space between the panels absorbs sound, also providing uniform light transmission without glare. Four basic embossed patterns are available: pyramids, circles, ripples, and squares.

(For Further Information Circle Index Code 015)

CARD PUNCH SYSTEM

Punched cards for accounting use are prepared as an automatic by-product of typewriting operations with a new machine announced by International Business Machines Corp., New York, N. Y. It is known as the Typewriter Card Punch and consists of an IBM electric typewriter electrically connected by cable to an IBM card punch. The machine is available with non-printing and printing punches.

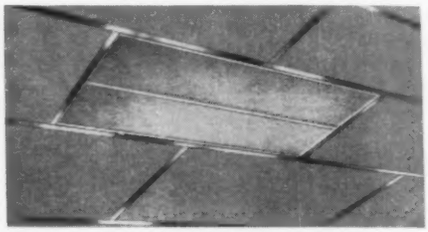
The new machine can be advantageously used wherever typing operations normally constitute the initial step in accounting procedures, and will be an important addition to the IBM line of feeder-type equipment for large-scale data processing systems.

Typewriter operation of the new machine is normal, except that upper case operation automatically provides for simultaneous card punching, and lower case permits the typing unit and punch to operate independently. A variation of type styles in upper and lower case enables the operator to distinguish easily and rapidly between punched and unpunched portions of the typed documents.

(For Further Information Circle Index Code 016)

NEW RECESSED TROFFERS

The trend to large area lighting, and the wide use of grid ceilings has led to the development of new 24-inch wide troffers by the Edwin F. Guth Company, St. Louis, Mo. The new dimensions (2- by 2-feet, 2- by 4-feet, and 2- by 8-feet) cover a line of versatile troffers designed for use in U. S. Gypsum's Z-Spline, Cupples Alumni-Coustic Ceiling, and also for plaster ceilings. This series of lumi-



Ceiling View

naires has concealed hinged shielding through use of Gratelite louver-diffusers.

The factory tested units are for 2-, 3-, 4-, and 6-lamp operation, and 20-, 40-, or 75-watt operation. Units 2- by 4-feet are readily installed as individual units, continuous rows or in unlimited lighting patterns. Troffers are fabricated of bonderized steel, finished in 300-degree white enamel and equipped with approved accessories.

(For Further Information Circle Index Code 017)

(Concluded on page 119)

Do They

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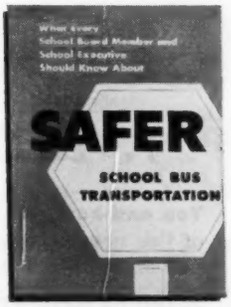
HOW TO GET THEM. It's simple. First, if you are buying new buses and are asking for competitive bids, insist that *all* bids submitted include *Air Brake* equipment. This way, the buses you ultimately choose will come from the factory *Air Brake* equipped. Secondly, you can modernize your present buses with handy field conversion kits—there's one designed for every make and model bus. Just call your Bendix-Westinghouse Distributor and he will make all arrangements—you'll find him in the yellow pages of your telephone directory.



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CATALOGS AND BOOKLETS

CLEANER SPECIFICATION

The Asphalt Tile Institute, New York, N. Y., has just announced the completion of a single specification to cover all types of cleaners for use on asphalt tile floors. It was developed by the Institute's Technical Research Committee to cover the many new products in the maintenance field, and it supersedes the three former Institute specifications for soap type, non-soap type, and synthetic detergent type cleaners that were first issued in 1951.

Liquid, paste, powder and flake cleaners are all included, and the specification is designed to indicate, not only all products that have an injurious effect on asphalt tile, but also those that will be irritating to the human skin. Single copies of the specification may be obtained, without charge.

(For Convenience Circle Index Code 018)

The Hev-E-Oil Burner Division of the Cleaver-Brooks Company, Milwaukee, Wis., announces a new bulletin AD-139 describing the wide use of their commercial and industrial burners for heating school buildings. This bulletin lists 375 representative Hev-E-Oil burner school installations; it is available on request.

(For Convenience Circle Index Code 019)

Royal Metal Mfg. Co., Chicago, Ill., has issued a new 26-page catalog in color, showing the complete line of steel furniture for school reception rooms, lounges, dining areas, shelving and storage cabinets, and adjustable stools and chairs for school laboratory use. Catalogs are free on request.

(For Convenience Circle Index Code 020)

The ten catalog sections of lighting equipment which have just been issued by Wakefield Brass Company, Vermilion, Ohio, for 1955 were designed for brevity in copy, and simplicity in drawings and tables, with maximum restful white areas. The brochure, designed by Architect John Terrence Kelly, is a definite advance in catalog presentation. Available on request.

(For Convenience Circle Index Code 021)

"What to Look for in a Good Translucent Build-ing Panel," a simplified, concise outline of product standards for translucent fiber glass-reinforced panels has been published by the Corrulux Division of Libbey-Owens-Ford Glass Company, Toledo, Ohio. Explanation of the two general uses for translucent panels — structural and decorative — as well as specifications are included.

(For Convenience Circle Index Code 022)

ADVERTISERS' PRODUCTS AND SERVICES

Advertisers in this index are given a code number in addition to the page number on which the advertisements appears. Refer to the advertisement for product or services available. Use the information card in requesting information from a number of advertisers.

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12	American Desk Mfg. Company School Furniture	109
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AMERICAN SCHOOL BOARD JOURNAL

P. O. Box No. 2068

MILWAUKEE 1, WISCONSIN

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For Your Product Information Request

The advertisements in this issue have been given a code number for your convenience in requesting information on products, services, booklets, and catalogs offered. Encircle the code number of the advertisement in which you are interested, clip and mail the "postage paid" card. Your request will receive prompt attention. BRUCE — MILWAUKEE.

THE AMERICAN SCHOOL BOARD JOURNAL January, 1955
400 North Broadway, Milwaukee 1, Wis.
Please send information offered in the advertisements we have encircled.

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Also information on _____

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Title _____ **School** _____

City _____ **Zone** _____ **State** _____

USE THIS COUPON

The advertisements in this issue have been given a code number for your convenience in requesting information on products, services, booklets, and catalogs offered. Encircle the code number of the advertisement in which you are interested, clip and mail the coupon to THE AMERICAN SCHOOL BOARD JOURNAL. Your request will receive prompt attention.

BRUCE–MILWAUKEE

MILWAUKEE 1, WISCONSIN

Little Bit Of Sweden, Dallas, Texas

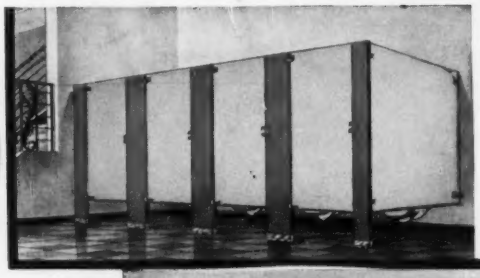
gourmet's delight

For a gustatory hit parade, choose from the many Sexton foods adapted to buffet service, hors d'oeuvres and smorgasbord ranging from the exotic to the merely exciting . . . hundreds of marine delicacies such as Black Sea caviar, Mediterranean sardines and Caribbean shrimp . . . plus special relishes produced in our own Sunshine Kitchens. With unsurpassed variety, quality par excellence and nation-wide service, Sexton meets your every food need.

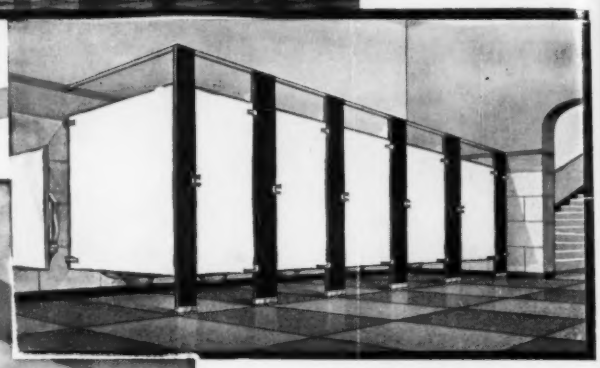
Sexton
Quality Foods

JOHN SEXTON & CO., CHICAGO, 1955

Get more than mere functional requirements from steel toilet compartments that stay new longer

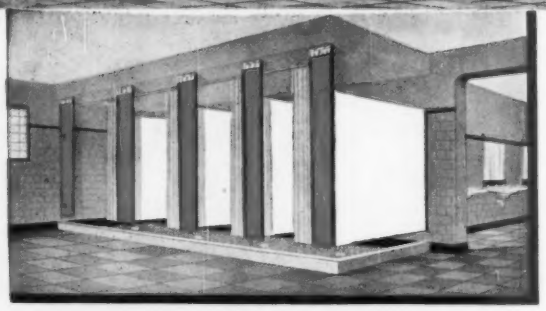


Sanymetal NORMANDIE Type Toilet Compartments endow a rest room environment with dignity and good taste.



Sanymetal ACADEMY Type Toilet Compartments are suitable for conservative but modern washroom environments.

Sanymetal CENTURY Type Ceiling Hung Toilet Compartments offer the utmost in sanitation and provide modern, distinctive rest room environments for schools, institutions, terminals and other public buildings.



Sanymetal CENTURY Type (Ceiling Hung) Shower Stalls of Sanymetal "Porcena" (Vitreous Porcelain on Steel) Partitions and Pilasters, as arranged for a typical club installation. Also available in Sanymetal "Tenac" (synthetic enamel baked-on over Galvanized, Bonderized* Steel).

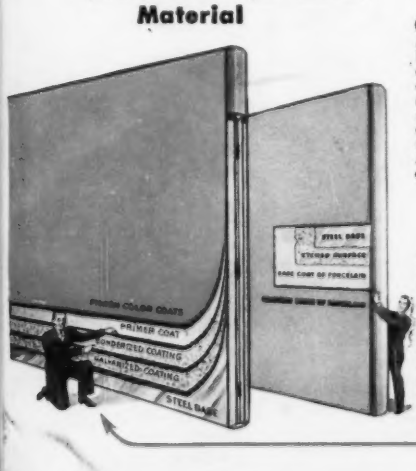
There is a vast difference in the service life of toilet compartments. Many elements or differences that determine whether a toilet compartment will have to be replaced within five years, ten years, or fifteen or twenty years, or the life of the building when Porcena (Vitreous Porcelain on Steel) is used, are not revealed by casual examination, and their importance is not appreciated until it is too late to avoid the necessity of early replacement. Sanymetal Toilet Compartments embody differences that result in long years of service life. One such difference that prolongs the life of Sanymetal Toilet Compartments is in the basic materials that are used, one of which is Vitreous Porcelain on Steel and another, baked-on paint enamel over Galvanized, Bonderized** Steel—a sheet that is merely galvanized does not meet Sanymetal requirements until it has been Bonderized* which assures that the baked-on paint enamel finish will provide greater resistance to corrosion and assure long-lasting newness. These two full-purpose metal base materials are of the utmost importance and represent the major difference in dollar-for-dollar value—a difference which, when measured by years of prolonged service, makes Sanymetal Toilet Compartments the most serviceable units for the long years ahead.

A few of the many other features that Sanymetal Engineers have provided are: (1) door hardware that assures trouble-free operation; (2) partition hardware and fittings that assure rigidity and permanence for the installation; (3) stainless steel plinths for pilasters which protect finish from the corrosive action of floor cleaning compounds. Features such as these represent years of engineering research and skillful adaptation by Sanymetal Engineers of corrosion-resistant steels to the fabrication of new and different types of toilet compartments, Sanymetal being the first to use Vitreous Porcelain on Steel. Sanymetal invites comparison because at Sanymetal quality is never compromised to obtain a temporary advantage.

Toilet compartments usually dominate a toilet room. The influence of a toilet room environment upon impressionable youth should be thoughtfully considered.

Sanymetal "PORCENA"
(VITREOUS PORCELAIN ON STEEL)

The Ageless and Fadeless Material



This is Sanymetal "PORCENA"

(Vitreous Porcelain on Steel)

A metal base material that is impervious to moisture, odors, cleaning and uric acids, oils and grease. It is rust proof, having the strength of steel, and a finish as smooth as glass—it's the new material that stays new. Available in 21 glistening colors.

This is Sanymetal "TENAC"

*(Baked-on Paint Enamel over Galvanized, Bonderized** Steel)*

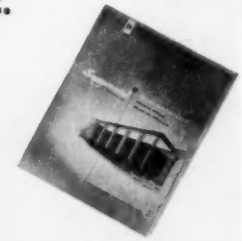
A metal base material that is notable for the positive adhesion of the baked-on paint enamel to the metal and its resistance to corrosion. Its lustrous, protective finish assures long-lasting newness. Available in 21 gleaming colors.

THE SANYMETAL PRODUCTS CO., INC.

Our 38th Year as a Manufacturer of Toilet Compartments

1686 Urbana Road • Cleveland 12, Ohio

Sanymetal Toilet Compartments embody the results of specialized skill and experience in fabricating over 1,000,000 toilet compartments installed in all types of buildings. Write for copy of colorful Catalog 92 or refer to Sanymetal Catalog $\frac{21b}{Sa}$ in Sweet's Architectural File for 1955. Ask your architect about planning suitable toilet room environments that will always stay new.



Sanymetal*

*Trade Mark Reg. U. S. Pat. Off.

**Treated with "Bonderite", a product of Parker Rust Proof Company

TOILET COMPARTMENTS
SHOWER STALLS AND
DRESSING ROOMS